INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES

Knowledge and awareness of breast cancer among working women

Vamshi Ram V[1], Kavitha S[*2], Preetha S[3], Vishnupriya V[2], Gayathri R[2]

[1]Saveetha Dental College and hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha university, Chennai, Tamil Nadu, India
[2]Department of Biochemistry, Saveetha Dental college and hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, Tamil Nadu, India
[3]Department of Physiology, Saveetha Dental college, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamil Nadu, India

ABSTRACT

Breast cancer is the most prevalent cancer among women in the world. The age-standardised incident rate for breast cancer is of 39 per 100,000, which is twice that of cancer in the second position. In India, also breast cancer is becoming an increasing health problem. The study is aimed to assess the knowledge and awareness of risk factors associated with breast cancer. A questionnaire composed of 15 questions were circulated through an online platform google forms. The results were collected and data were analyzed using SPSS software. The awareness of breast cancer among working women comprising 75% aware and 25% not aware. The awareness about risk factors of breast cancer comprising 80% aware and 20% not aware. The percentage of the risk factor of breast cancer comprising 28% family history of breast cancer, 22% of advanced age, 9% obesity and 41% choose all the above. The overall awareness of all subgroups was fair reporting correct answers. The awareness among working women was moderate and more awareness should be created. This study concludes that awareness and measures have been taken towards risk factors of breast cancer.

*Corresponding Author

Name: Kavitha S
Phone: 9567263096
Email: kavithas.sdc@saveetha.com

INTRODUCTION

Breast cancer is the most prevalent cancer among women in the world. The age-standardized incident rate for breast cancer is of 39 per 100,000, which is twice that of cancer in the second position. In India, also breast cancer is becoming an increasing health problem. Lifestyle changes such as child-bearing and dietary habits contributed further to the elevated incidence of the disease. Various kinds of breast cancers are there. Most breast cancer begins in the ducts of lobules. If observed early breast cancer mostly can typically be cured; however, the most effective way to lessen the mortality is an early diagnosis by screening. Globally, breast cancer is becoming a principal cause of morbidity and mortality. However, its impact is even more significant in developing countries (Gan *et al.*, 2019; Noreen *et al.*, 2015). Early diagnosis of breast cancer plays a key role in decreasing the mortality and improving the outcome (Pengpid and Peltzer, 2014). It has been found that majority of the patients are in the third and fourth stage (Pal *et al.*, 2010), and the available facility level and treatment are variable (Kuraparthy *et al.*, 2007). Since the survival rate is constantly

low (Gajalakshmi *et al.*, 1997), the improvement in the availability and accessibility of facilities of treatment needs to be done, as well as education and awareness should also be enhanced (Mittra, 2008).

The major factors associated with the enhanced risk of breast cancer include a family history of the disease and inherited mutations (Alharbi *et al.*, 2012). Obesity is also considered as a major risk for breast cancer (Shukri *et al.*, 2016). The occurrence of breast cancer is found to be common in females with type-II diabetes, especially in older women at the menopause stage. Studies proved that diabetic women are more prone to post-menopausal breast cancer than non-diabetic older women (Ponnulakshmi *et al.*, 2019). The important screening test employed for the early detection includes CBE or clinical breast examination, X-ray and BSE or breast self-examination (Siahpush and Singh, 2002).

Other than breast cancer, nowadays, researchers are going on in search for developing drugs against other cancers. Thyroid cancer is the most widespread endocrine malignant cancer (Ma *et al.*, 2019). Glioma is the prime cause of cancer in adolescent people and it accounts for about 80% of all malignant tumours (Li *et al.*, 2020). Naturally occurring medicinal plants can inhibit the growth of various cancers. Antioxidants have the potential to reduce the risk of cancer (Ramya *et al.*, 2018). Adiponectin is considered to be one of the key factors for obesity and it is believed to be an important link of the connection between obesity and breast cancer (Mohan *et al.*, 2015).

Educational institutions, healthcare professionals and media are the key resources for the propagation of knowledge about breast cancer to women (Akhigbe and Omuemu, 2009; Rengasamy *et al.*, 2018). The present study is aimed to assess the knowledge and awareness on risk factors of breast cancer among working women.

MATERIALS AND METHODS

A total of 100 working women were participated in this study. A cross-sectional observational survey was conducted through an online platform Google forms with dichotomous response and multiple-choice questions. The study setting and approval was the ethical board of Saveetha University. The questionnaire contains 15 questions based on risk factors of breast cancer and finally, the data were collected and entered in excel and then it is converted into SPSS software and analyzed. The correlation of data was carried out using the chi-square test in comparison with the age of the respondents. The results were represented as pie charts and bar graphs.
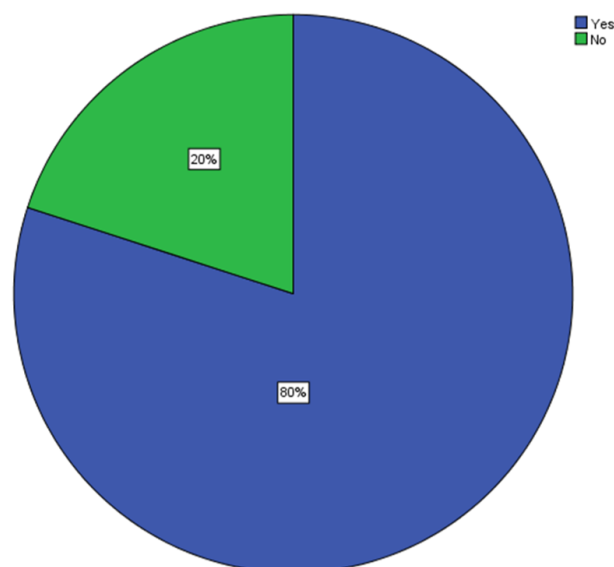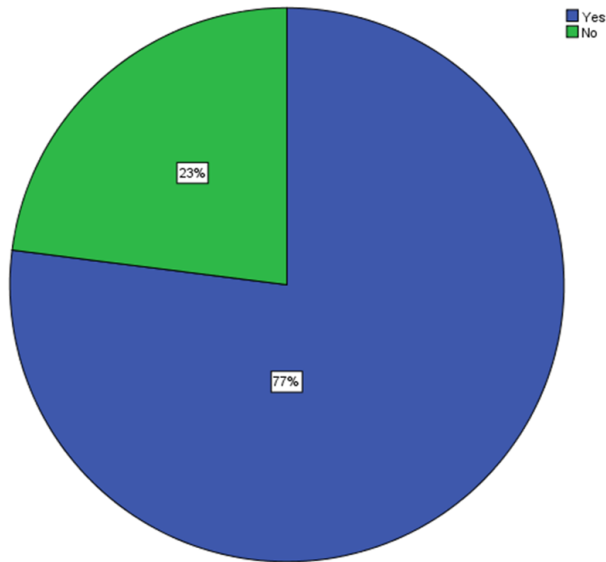

Figure 1: This pie chart represents the percentage of women who are following a proper diet.
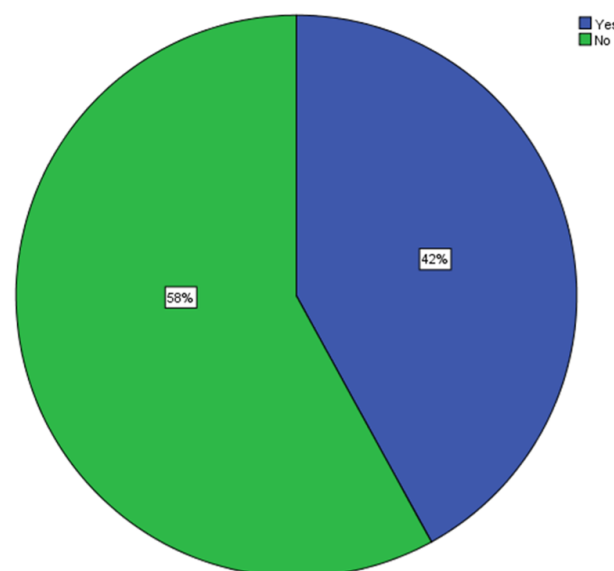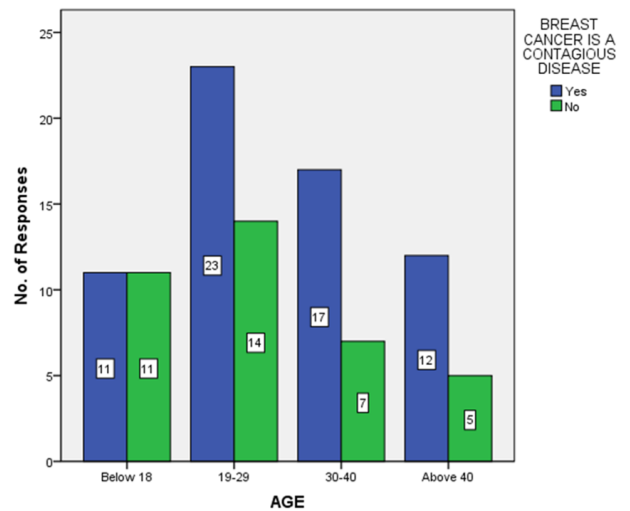

Figure 2: This pie chart represents the percentage of women with a family history of cancer.

RESULTS AND DISCUSSION

The results were collected and the data were analyzed. Most of the working women were aware of breast cancer and precautions were taken. The percentage of women following a proper diet comprises 80% and 20% don't follow (Figure 1). The percentage of women having a family history of cancer is 42% and not having 58% (Figure 2). The awareness that breast cancer is leading cancer in women comprises 77% aware and 23% not aware (Figure 3).
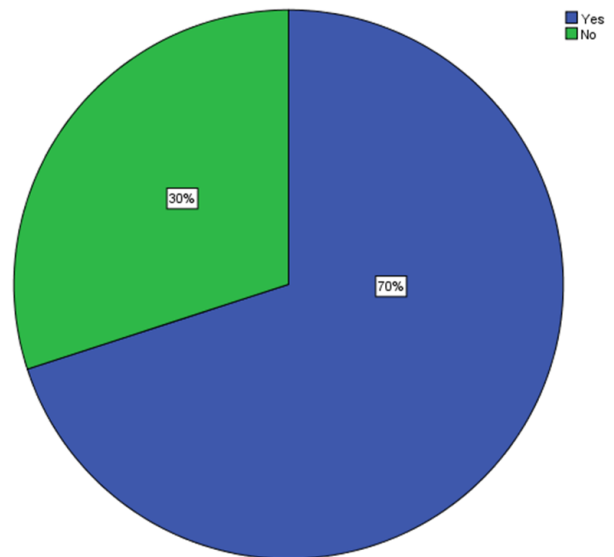
Figure 3: This pie chart represents the percentage of women who are aware of breast cancer is the most prevalent cancer.

Figure 5: Bar graph showing the comparison of responses based on age group to the awareness on breast cancer as contagious disease.
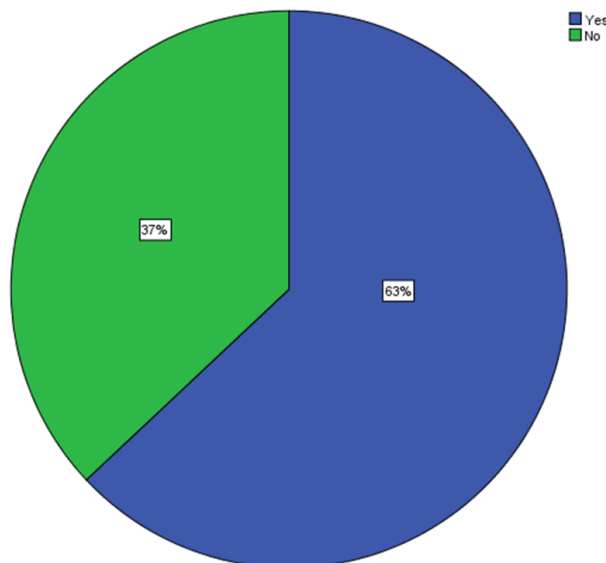
Figure 4: This pie chart represents the percentage of women who think breast cancer is a contagious disease.


Figure 6: This pie chart represents the percentage of women who are aware of mammography.
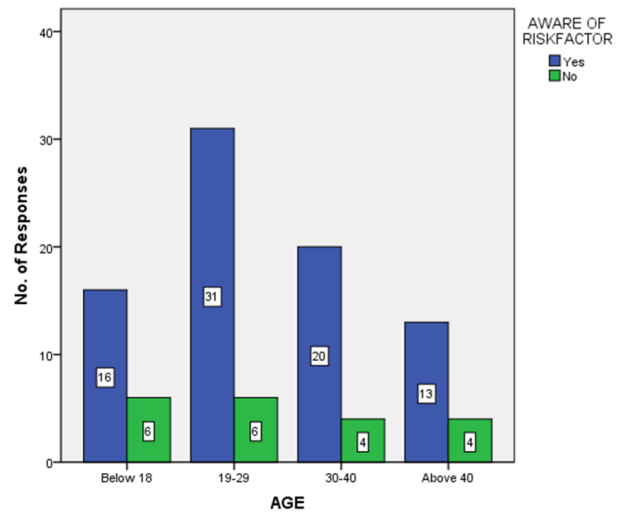
The percentage of women who think breast cancer is a communicable disease is 63% and 37% don't think (Figure 4). The percentage of respondents were aware of mammography is 70% and 30% have not heard (Figure 6). 80% of the respondents were aware and 20% were not aware of breast cancer risk factors (Figure 8). The percentage of the risk factor of breast cancer comprising 28% family history of breast cancer, 22% of advanced age, 9% obesity and 41% choose all the above (Figure 10). The percentage of reasons for breast self-examination apprising 61% doctors' advice, 26% I might have cancer in future and 13% alarming symptoms (Figure 11).

The percentage of diagnostic modalities of breast cancer comprising 35% BSE, 40% mammography and 25% ultrasonography of breast (Figure 13).
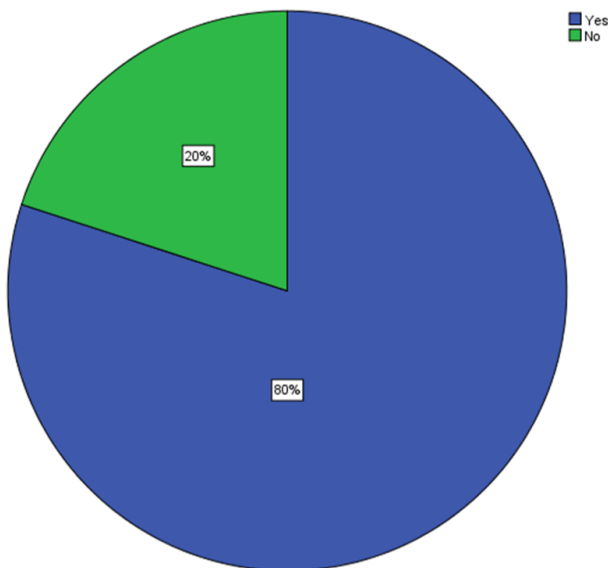
Chi-square test was done in comparison with the age of the respondents. The graph showed that 11 participants in the age group of below 18 years, 23 participants in the 19-29 years age group, 17 participants in the 30-40 years age group and 12 participants in the 40 years and above age group think breast cancer is a contagious disease among women Figure 5 shows that Most of the working women aged 19-29 years (23 participants) think that breast cancer is a contagious disease (Chi-square value-2.658, p-value-0.447 >0.05, hence not significant).
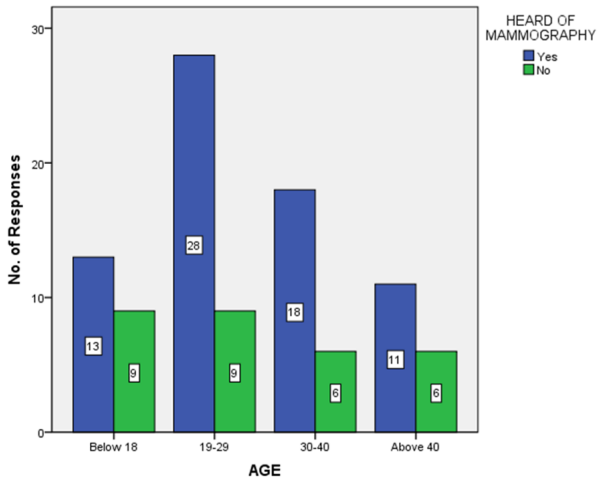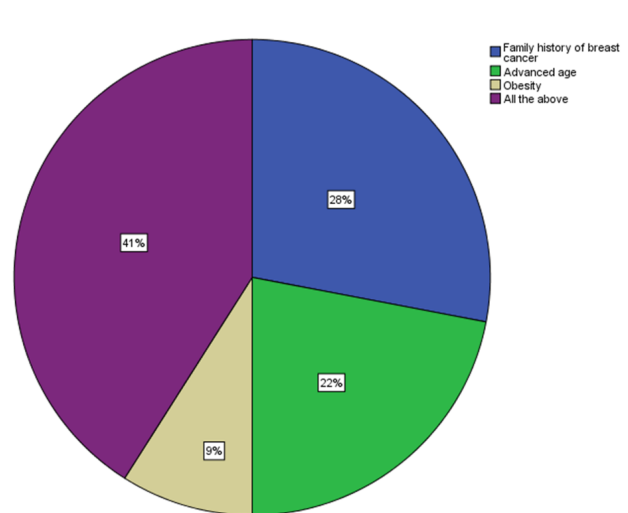
Figure 7: Bar graph showing the comparison of responses based on age group to the awareness on mammography.

Figure 9: Bar graph showing the comparison of responses based on age group to the awareness on risk factors of breast cancer.
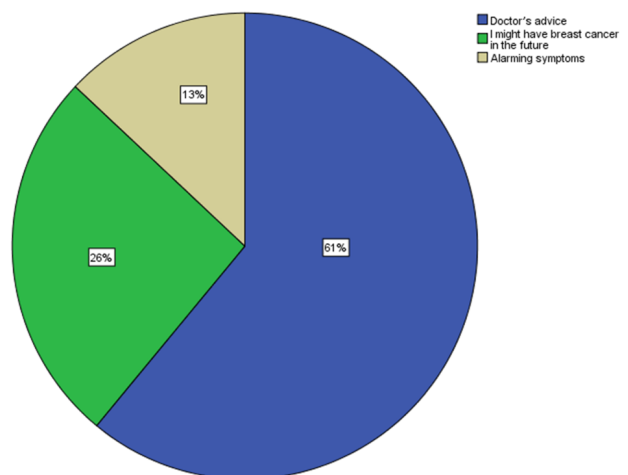

Figure 8: This pie chart represents the percentage of women aware of the risk factors of breast cancer.
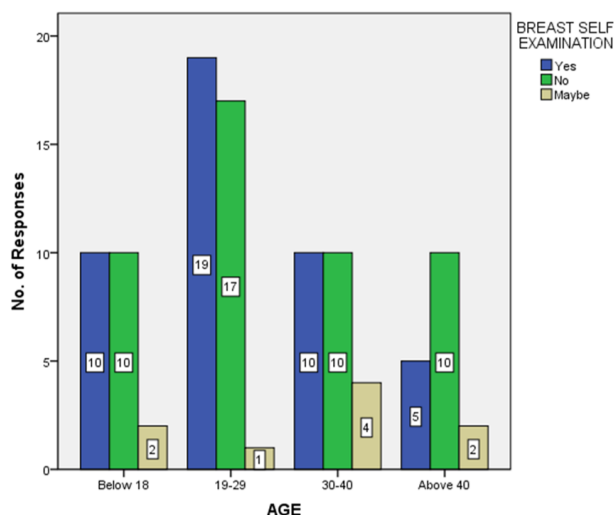

Figure 10: This pie chart represents the percentage distribution of the risk factors associated with breast cancer.

The graph showed that 13 participants in the age group of below 18 years, 28 participants in the 19-29 years age group, 18 participants aged 30-40 years and 11 participants aged 40 years and above were aware of mammography Figure 7 shows that Most of the working women aged 19-29 years (28 participants) were aware of mammography (Chi-square value-2.327, p-value-0.507 >0.05, hence not significant). The graph showed that 16 participants in the age group of below 18 years, 31 participants aged 19-29 years, 20 participants aged 30-40 years and 13 participants aged 40 years and above were aware of breast cancer risk factors Figure 9 shows that Most of the working women aged 19-29 years (31 participants) were aware of breast cancer

Figure 11: This pie chart represents the percentage of responses on the reasons for doing BSE.

Figure 12: Bar graph showing the comparison of responses based on age group to the awareness on breast self-examination.
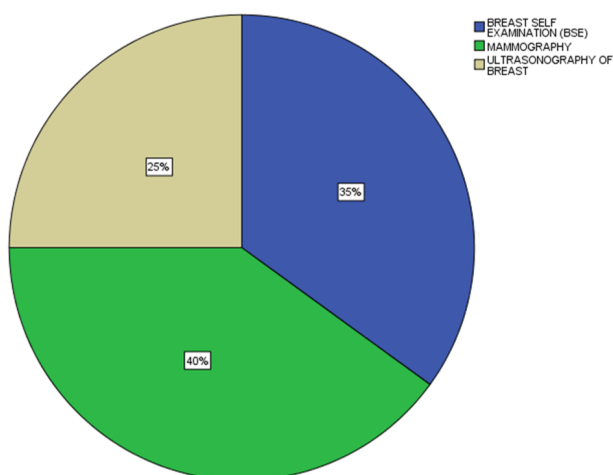
Figure 13: This pie chart represents the percentage distribution of diagnostic modalities of breast cancer.

risk factors (Chi-square value-1.357, p-value-0.716 >0.05, hence not significant). The graph showed that 10 participants aged below 18 years, 19 participants aged 19-29 years, 10 participants aged 30-40 years and 5 participants aged 40 years and above had done BSE Figure 12 shows that Most of the working women aged 19-29 years (19 participants) were aware of BSE (Chi-square value-5.330, p-value-0.502>0.05, hence not significant). However, the difference in awareness based on age group is not statistically significant.

The prevalence of breast cancer is increasing rapidly worldwide. It is the most prevailing cancer among women and is becoming a serious health challenge. Natural products are used widely nowadays to avoid the various side effects caused by carcinogenic drugs (Menon *et al.*, 2016; Rengasamy *et al.*, 2016).

The use of traditional and alternative medicine in various diseases, including cancer, is documented in many studies (Wu *et al.*, 2019). Previous studies have demonstrated that 4-shogaol from ginger may be a novel anticancer agent for the treatment of metastasis in breast cancer (Chen *et al.*, 2019). Garcinol has also shown strong activity against breast cancer and leukemia (Jainu *et al.*, 2018). Bionanotechnology has a pivotal role in the development of a novel therapy in the treatment of cancer (Ke *et al.*, 2019; Wang *et al.*, 2019).

Our results showed that 75% of women were aware of breast cancer and 25% were not aware. In the previous study conducted by Noreen et al., 67% were aware of breast cancer which is similar to the present study (Noreen *et al.*, 2015).

In our study, 77% of women were aware that breast cancer is leading cancer among women. In the previous study by Omar et al., 65% of the participants agreed that breast cancer is the most prevalent cancer among women (Omar *et al.*, 2020).

In the present study, 44% of women were done BSE as in the study done by Sadhwi et al., only 34.9% of participants were aware of BSE (Sadhwi *et al.*, 2019). In our study, 50% of participants choose age and family history as the risk factor of breast cancer. Similarly, at the study conducted by Abhang N, et al., 50% of the participants chose age and family history as breast cancer risk factors (Abhang and Lopez, 2018).

The present study has some limitations, like the study population can be more precise as the sample size was only 100 participants and only among working women. Not used diagnostic modalities. We could create more awareness and let people understand the risk factors of breast cancer.

CONCLUSION

The present study showed that 80% of the working women were aware of the risk factors associated with breast cancer. About 70% of the working women were aware of mammography and 41 % of the population responded family history, advanced age and obesity are key risk factors associated with breast cancer. Hence to conclude, the knowledge and awareness on risk factors of breast cancer among working women are quite good. For further augmentation, awareness should be created through various programs.

ACKNOWLEDGMENT

REFERENCES

Abhang, N., Lopez, J. 2018. Awareness and Knowledge of Breast Cancer Risk Factors, Symptoms and Screening Among Females-Evidence from India. *Journal of Commerce and Management Thought*, 9(1):55.

Akhigbe, A. O., Omuemu, V. O. 2009. Knowledge, attitudes and practice of breast cancer screening among female health workers in a Nigerian urban city. *BMC Cancer*, 9(1):203.

Alharbi, N. A., Alshammari, M. S., Almutairi, B. M., Makboul, G., El-Shazly, M. K. 2012. Knowledge, awareness, and practices concerning breast cancer among Kuwaiti female school teachers. *Alexandria Journal of Medicine*, 48(1):75–82.

Chen, F., Tang, Y., Sun, Y. 2019. 6-shogaol, an active constituent of ginger prevents UVB radiation mediated inflammation and oxidative stress through modulating NrF2 signalling in human epidermal keratinocytes (HaCaT cells). *Journal of photochemistry and photobiology. B. Biology*, 197:111518.

Gajalakshmi, C. K., Shanta, V., Swaminathan, R., Sankaranarayanan, R., Black, R. J. 1997. A population-based survival study on female breast cancer in Madras, India. *British Journal of Cancer*, 75(5):771–775.

Gan, H., Zhang, Y., Zhou, Q. 2019. Zingerone induced caspase-dependent apoptosis in MCF-7 cells and prevents 7,12-dimethylbenz(a)anthracene-induced mammary carcinogenesis in experimental rats. *Journal of biochemical and molecular toxicology*, 33(10):22387.

Jainu, M., Priya, V., Mohan, S. 2018. Biochemical evidence for the antitumor potential of Garcinia mangostana Linn. On diethylnitrosamine-induced hepatic carcinoma. *Pharmacognosy Magazine*, 14(54):186.

Ke, Y., Aboody, M. S. A., Alturaiki, W., Alsagaby, S. A., Alfaiz, F. A., Veeraraghavan, V. P., Mickymaray, S. 2019. Photosynthesized gold nanoparticles from Catharanthus roseus induces caspase-mediated apoptosis in cervical cancer cells (HeLa). *Artificial Cells, Nanomedicine, and Biotechnology*, 47:1938–1946.

Kuraparthy, S., Reddy, K. M., Yadagiri, L. A., Yutla, M., Venkata, P. B., Kadainti, S. V., Reddy, R. P. 2007. Epidemiology and patterns of care for invasive breast carcinoma at a community hospital in Southern India. *World Journal of Surgical Oncology*, 5(1):56.

Li, Z., Veeraraghavan, V. P., Mohan, S. K. 2020. Apoptotic induction and anti-metastatic activity of eugenol encapsulated chitosan nanopolymer on rat glioma C6 cells via alleviating the MMP signalling pathway. *Journal of photochemistry and photobiology. B. Biology*, 203:111773.

Ma, Y., Karunakaran, T., Veeraraghavan, V. P., Mohan, S. K., Li, S. 2019. Sesame Inhibits Cell Proliferation and Induces Apoptosis through Inhibition of STAT-3 Translocation in Thyroid Cancer Cell Lines (FTC-133). *Biotechnology and Bioprocess Engineering*, 24(4):646–652.

Menon, A., Priya, V. V., Gayathri, R. 2016. Preliminary Phytochemical Analysis And Cytotoxicity Potential Of Pineapple Extract On Oral Cancer Cell Lines. *Asian Journal of Pharmaceutical and Clinical Research*, 9:140.

Mittra, I. 2008. Screening for breast cancer: is it globally applicable? *Nature Clinical Practice Oncology*, 5(2):60–61.

Mohan, S. K., Veeraraghavan, V. P., Jainu, M. 2015. Effect of pioglitazone, quercetin and hydroxy citric acid on extracellular matrix components in experimentally induced non-alcoholic steatohepatitis. *Iranian journal of basic medical sciences*, 18(8):832–836.

Noreen, M., Murad, S., Furqan, M., Sultan, A., Bloodsworth, P. 2015. Knowledge and Awareness about Breast Cancer and its Early Symptoms among Medical and Non-Medical Students of Southern Punjab, Pakistan. *Asian Pacific Journal of Cancer Prevention*, 16(3):979–984.

Omar, A., Bakr, A., Ibrahim, N. 2020. Female medical students' awareness, attitudes, and knowledge about early detection of breast cancer in Syrian Private University, Syria. *Heliyon*, 6(4):e03819.

Pal, R., Srivastava, N., Chopra, R. 2010. Investigation of DNA damage response and apoptotic gene methylation pattern in sporadic breast tumours using high throughput quantitative DNA methylation analysis technology. *Molecular cancer*, 9(1):303.

Pengpid, S., Peltzer, K. 2014. Knowledge, attitude and practise of breast self-examination among female university students from 24 low, middle income and emerging economy countries. Asian Pacific journal of cancer prevention. *APJCP*,

15(20):8637–8640.

Ponnulakshmi, R., Shyamaladevi, B., Vijayalakshmi, P., Selvaraj, J. 2019. In silicoandin vivoanalysis to identify the antidiabetic activity of beta sitosterol in adipose tissue of high fat diet and sucrose induced type-2 diabetic experimental rats. *Toxicology Mechanisms and Methods*, 29(4):276–290.

Ramya, G., Priya, V. V., Gayathri, R. 2018. Cytotoxicity of the strawberry extract on the oral cancer cell line. *Asian J Pharm Clin Res*, 11(9):353–358.

Rengasamy, G., Jebaraj, D. M., Veeraraghavan, V. P., Krishna, S. 2016. Characterization, Partial Purification of Alkaline Protease from Intestinal Waste of Scomberomorus Guttatus and Production of Laundry Detergent with Alkaline Protease Additive. *Indian Journal Of Pharmaceutical Education And Research*, 50(2):59–67.

Rengasamy, G., Venkataraman, A., Veeraraghavan, V. P., Jainu, M. 2018. Cytotoxic and apoptotic potential of Myristica fragrans Houtt. (mace) extract on human oral epidermal carcinoma KB cell lines. *Brazilian Journal of Pharmaceutical Sciences*, 54(3).

Sadhwi, Rao, G. M., Aradhana, M., Kamath, U. S. 2019. Breast Self-Examination and Clinical Breast Examination: Knowledge, Practice, and Awareness Towards Breast Cancer among Females in and around Mangaluru. *Indian Journal of Public Health Research and Development*, 10(7):323.

Shukri, N. M. M., Vishnupriya, V., Gayathri, R., Mohan, S. K. 2016. Awareness in childhood obesity. *Research Journal of Pharmacy and Technology*, 9(10):1658.

Siahpush, M., Singh, G. K. 2002. Sociodemographic Predictors of Pap Test Receipt, Currency and Knowledge among Australian Women. *Preventive Medicine*, 35(4):362–368.

Wang, Y., Zhang, Y., Guo, Y. 2019. Synthesis of Zinc oxide nanoparticles from Marsdeniatenacissima inhibits the cell proliferation and induces apoptosis in laryngeal cancer cells (Hep-2). *Journal of photochemistry and photobiology. B. Biology*, 201:111624.

Wu, F., Zhu, J., Li, G. 2019. Biologically synthesized green gold nanoparticles from Siberian ginseng induce growth-inhibitory effect on melanoma cells (B16). *Artificial cells, nanomedicine, and biotechnology*, 47(1):3297–3305.