SHORT ARTICLE

A Cross-Sectional Study on Gender Differences and Influence of Social Media Engagement on Breast Cancer Knowledge among Delhi-NCR Population in India

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Abstract	Introduction	Methodology	Results	Conclusion	References	Citation	Tables / Figures

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Abstract

Breast cancer is leading cause of death worldwide including India. Low awareness is one factor causing late diagnosis and eventually death in developing countries like India. Social media is being used for breast cancer awareness. This study aimed to investigate relationship between social media engagement and breast cancer knowledge and to examine gender differences. Cross sectional study was conducted in Delhi-National Capital Region (NCR). Pearson's coefficient correlation test was conducted to examine social media engagement and breast cancer knowledge relationship. Independent t test was applied to find gender differences for social media engagement and breast cancer knowledge. Significant moderate correlation was found between social media engagement and breast cancer knowledge (p<.01). A gender difference was found for social media engagement and breast cancer knowledge (p<.05). Result justified that social media engagement is resulting in breast cancer awareness. Results also confirmed difference between male and female regarding social media engagement and breast cancer knowledge.

Keywords

Breast Cancer; Social Media; Awareness; Gender Differences.

Introduction

Breast cancer is a global burden (1) and it is the most common cancer among women of India.(2) Poor level of awareness of the disease is one factor among others causing advance diagnosis and eventually death (2,3) especially in developing countries like India. Because this disease is more prevalent among women than men; (4) so, in India, mostly efforts have been made for women awareness and evaluate their knowledge, attitude and practices. (3,5) After the advent of internet, social media is being widely used to promote breast cancer awareness. (6) In recent times, this media has become popular in India across the gender. (7)

In authors' knowledge, no study has attempted so far to understand the influence of social media engagement on the awareness level of breast cancer of women as well as men in Delhi-National Capital Region (NCR) of India. We also tried to look into the

gender difference in social media engagement and knowledge level of breast cancer.

Aims & Objectives

1. To investigate the relationship between social media engagement and breast cancer awareness across the gender.
2. To examine the gender difference in social media engagement and breast cancer awareness.

Material & Methods

Data Collection: We conducted face to face cross-sectional questionnaire survey in Delhi-NCR of India from June 2019 to February 2020. Selection criteria included both males and females using social media, 20 to 65 years of age. Individuals were excluded if they were having any history of breast cancer. 382 fully filled up questionnaire were analyzed.

Sample Selection Procedure: In the absence of population frame, the calculated sample size was 385 assuming that about 50% social media users in Delhi–NCR of India lack knowledge about breast cancer with margin error of ± 5% and confidence level of 95%. After adding 5% of non-responses, it turned out to be 405. We used purposive sampling method; type of non-probability sampling.

Study Instrument: A questionnaire adapted from previous literature (5,8,9) suitable in Indian context was developed on seven point Likert scale. Part one had questions about demographic details. Part two consisted eight items related to social media engagement. Part three consisted of three sub-scales and 19 items in all. First sub- scale had seven items related to modifiable risk factors of breast cancer, second sub-scale had eight questions on symptoms and third sub- scale had four questions related to screening knowledge. To measure the internal consistency of the scale Cronbach alpha value was computed. For social media engagement scale, Cronbach alpha value was .79. For breast cancer scale, Cronbach alpha was .91 was for all 19 items. For all three sub-scales alpha values were respectively found to be .94, .92 and .86, that is as per required value. Correlation coefficient was used to measure construct validity of the scale ranging from .310 to .569 for social media engagement scale and .363 to .890 for breast cancer scale, indicating a moderate to very good positive and statistically significant relationship among all items of both the scale. On a seven-point scale, minimum score was eight and maximum was 56 points for social media

engagement and 19 minimum and 133 maximum points for breast cancer awareness.

Statistical Analysis: In this study, social media engagement is independent variable and breast cancer knowledge is dependent variable. Data analysis was done in SPSS version-21. Data normality test was conducted using Kolmogorov-Smirnov test. Data was normally distributed so, Pearson's coefficient correlation test was conducted to test the relationship between social media engagement and breast cancer knowledge. Further, independent sample t test was conducted to examine the differences between male and female social media engagement and breast cancer knowledge. A p-value < 0.05 was considered significant for all the analysis.

Ethical Approval: Approval was not required from the ethical committee because study was conducted without any human intervention. Consent was taken from all the participants and their confidential concerns were maintained.

Results

Of all the respondents (n=382), 43.7% (n=167) were male and 56.3% (n=215) were female. Overall mean age of the respondents was 36.47±8.89 years. In all, maximum 67.3% (n=257) participants were graduate and 26.7% (n=102) were post graduate. Only 6% (n=23) respondents were intermediate. 31.2% (n=119) were homemaker, 65.2% (n=249) were in service and 3.7% (n=14) were student. Large percentage of the respondents; 87% (n=317) were married, 15.4% were single and only 1.6% (n=6) were in other category. Maximum 87.8% participants confirmed that their source of breast cancer knowledge is social media.

Significant moderate correlation found between social media engagement and breast cancer awareness (p<.01) for all the respondents. Both male and female separately too had significant medium relationship between their social media engagement and breast cancer awareness. All details are given in (Table-1).

There was statistically significant gender differences found between male and female sample population for social media engagement and breast cancer knowledge as well. All details are given in (Table-2).

Discussion

In authors' knowledge, previous studies have been conducted to understand the association of socio-demographic factors with breast cancer awareness. (1,5) This is the first attempt to evaluate the

association of social media engagement with breast cancer knowledge of women as well as men. Additionally, gender differences were also studied for social media engagement and breast cancer knowledge. Given the fact that social media is now popular tool to reach people for breast health education and its popularity among all the demographics, this study result will be very useful to understand how much this media is associated with breast cancer knowledge among women as well as men.

This study has mainly three findings. First; there were statistically significant moderate correlation between social media engagement and breast cancer awareness across the gender. Second, there were more pronounced relationship between independent and dependent variables in women than men. Third; female participants had statistically significant higher mean values for social media engagement and breast cancer awareness than men. The finding that there is significant relationship between social media engagement and breast cancer awareness are consistent with earlier studies where social networking sites were found effective for health behavior related outcomes. (10) Our study result that women were having good awareness about breast cancer is in contrast with earlier studies where women were having poor awareness about breast cancer. (3) In these studies, it was not revealed whether women were using social media and what was their source of breast cancer knowledge. So, here it can be claimed that social media is generating knowledge about breast cancer among women. Men were having less knowledge about breast cancer than women that is consistent with earlier study. (1) This difference may also be due to the fact that breast cancer is not affecting men directly so much, (4) so they would have shown less interest in breast cancer information available on social media.

Furthermore, this study finding suggests that a very good percentage of the participants were married (87%) that might have resulted in higher knowledge of breast cancer coming through social media. This may have happened due to the fact that marriage affects opinion and requirements of the partners. Also better awareness of breast cancer may have come through social media because a majority percentage of the participants were having good educational background. Additionally, a quite good percentage of the participants (65.2%) were in

service, which might be one reason that their network was good on social media and getting good knowledge about breast cancer. In our study, about 79.8% of the participants have confirmed that their source of breast cancer knowledge was social media, which is constant with earlier findings. (8)

Conclusion

This study result found significant association between social media engagement and breast cancer knowledge across the gender. Gender differences for social media engagement and breast cancer awareness were also found between male and female.

Recommendation

If government, health professionals and allied organizations take proactive approach to use social media to make people aware through their authentic and validated knowledge about breast cancer, late diagnosis and increasing mortality rate can be curbed to a great extent.

Limitation of the study

In spite of some captivating findings, we have some limitations too in our study. Firstly, our sample was selected from Delhi-NCR of India, so it cannot be generalized to the total population of India. Secondly, we used purposive sampling method which might have caused unequal representation of the study population. Further studies should consider intervention based study and also focus small towns and rural areas.

Relevance of the study

Despite various attempts of governments using other media awareness target was not achieved. Our study results would help government and health professionals and allied organizations to incorporate social media as health awareness tool on priority basis.

Authors Contribution

All authors have contributed equally.

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Tables

TABLE 1 PEARSON CORRELATION BETWEEN SOCIAL MEDIA ENGAGEMENT AND BREAST CANCER AWARENESS

Correlation of Social media engagement with	Pearson Correlation coefficient, r	p-value
Breast cancer knowledge (of all)	.479	.000**
Male	.331	.000**
Female	.473	.000*
Risk factors of breast cancer (of all)	.343	.000**
Male	.313	.000*
Female	.398	.000*
Symptoms of breast cancer (of all)	.360	.000**
Male	.317	.000*
Female	.327	.000*
Screening methods of breast cancer (of all)	.433	.000**
Male	.385	.000**
Female	.325	.000**
*correlation is significant at the 0.05 level (two-tailed); **correlation is significant at the 0.01 level (two-tailed)		

TABLE 2 MEAN VALUES OF SOCIAL MEDIA ENGAGEMENT (SME) AND BREAST CANCER AWARENESS (BCA) OF MALE AND FEMALE

Parameter	Male(n=167) Mean ± sd	Female(n=215) Mean ± sd	Mean difference(95%CI)	t statistics(df)	p-value*
Age	34.45±9.28	38.03±8.26	3.58(-5.37 to -1.78)	-3.921 (334.76)	<.001
SME	32.80±7.18	39.25±6.71	6.44(-7.86 to -5.03)	-8.95 (344.65)	<.001
BCA	70.49±13.73	102.68±8.64	26.489(-34.58to 29.79)	-26.483 (264.42)	<.001
Risk factors knowledge	23.17±8.75	37.74±6.14	14.56(-16.13to -12.99)	-18.27 (285.05)	<.001
Symptoms knowledge	30.13±9.88	43.86±6.48	13.68(-15.42to 11.94)	-15.48 (271.89)	<.001
Screening knowledge	17.14±4.76	21.08±3.52	-3.94(-4.80 to -3.07)	-8.94 (295.77)	<.001
Sd= standard deviation; df= degree of freedom; *p value< 0.05 by independent t-test					