Assessing the Impact of Awareness program on Breast and Cervical Cancer Knowledge Empowerment among Working Women in Education Sector

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Abstract   According to GLOBOCAN 2012 data released in December 2013 there are more than 10 lakh cancer cases per annum in India. The Incidence of breast cancer is growingin younger and elder women population worldwide. In India, the incidence of breast cancer is increasing at an alarming rate. The cervix cancer incidence is also very high in India especially in rural Indian women. The earlier studies have shown that raising the awareness regarding these two cancers can go long way as these are the progressive cancers and if women are made aware to get the diagnostic tests done regularly then there is more probability of getting the small tumors diagnosed early, which can be treated effectively and cure rate can be better. Therefore, a study was conducted to investigate the impact of awareness program on breast and cervical cancer knowledge empowerment among working women in education sector. Quasi experimental pretest-post test design was used on the sample of 110 working women which were selected by simple random sampling technique. A self reported questionnaire on knowledge assessment regarding breast and cervical cancer was prepared and validated. The questionnaire was administered to the respondents to measure their baseline pre test knowledge regarding breast and cervical cancer. After the pre test, information on breast and cervical cancer was sent to all the respondents through e-mail which included the information on risk factors, sign and symptoms, diagnostic tests, early detection and risk prevention aspects. After three days, post test was conducted to measure the impact of information on knowledge empowerment of respondents. Data was analyzed through descriptive and inferential statistics using SPSS 16.0 version. The study finding revealed that baseline knowledge of working women regarding breast and cervical cancer was inadequate. The knowledge of respondents improved significantly after sensitizing them through the information on breast and cervical cancer. The present study revealed that knowledge of breast and cervical cancer is astonishingly inadequate among educated and working women, which gives an insight to healthcare personnel to sensitize the women to take measures such as self breast examination, getting mammography and Pap smear tests done to detect these two deadly cancers at early stages. Therefore, there is need for organizing awareness programs at national, community and individual levels so that women can become aware regarding preventive aspects and early diagnostic techniques so that these cancers can be curbed before occurrence and at an early stage.

Keywords: Breast cancer, Cervical Cancer, Early stage, Knowledge empowerment, working women.

1. INTRODUCTION

The two most commonly found cancers in women are breast and cervical cancer. Breast cancer is topmost cancer found in urban women population. Nandakumar, Ramnath & Chaturvedi(2010) stated "In the year 2007, 82,000 new cases of cancer Breast were

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reported in India. In hospital-based cancer registries, cancer of the breast is the leading site of cancer in Mumbai and Thiruvananthapuram, second leading site in Bangalore, Dibrugarh and Chennai. Cancer of breast constitutes 14.3 % to 30.0% of all cancers in women. The report on 'Development of an Atlas of Cancer in India' showed that Chandigarh (39.5), North Goa (36.8), Aizawl (36.2) and Panchkula (34.6) had the higher microscopic incidence rates of breast cancer compared to that seen in Delhi."

Breast cancer is the cancer of breast tissue leading to uncontrolled growth of cancerous cells which may invade surrounding tissues or spread (metastasis) elsewhere in the body affecting the other healthy cells. Its symptoms may vary widely like lumps in the breast or armpit, swelling or skin changes, nipple inversion, change in the size of the breast, pain, soreness or discoloration of the breast. There is no specific cause to it but some of the risk factors like increasing age, positive family history, high fat diet, smoking, alcohol consumption, first child at late age >30yrs, early menarche, late menopause, stress and larger breast definitely increase the likelihood of developing this disease. Early detection and treatment of breast cancer can improve the survival rate up to 98%. Risk of breast cancer can be prevented by performing monthly Breast self examination, regular clinical breast examinations and mammography.

Cervical Cancer has emerged as second most common cancer among women globally. According to NCRP report (2007) 4,93,243 women affected by Cervical Cancer every year in the world. 2,73,505 women die of the disease every year in the world. 1,32,082 women affected by Cervical Cancer every year in India. 74,118 women die of the disease every year in India. Cervical cancer is the cancer of the cervix. The cervix is the lower narrow end of the uterus which further connects the vagina (birth canal). It can be called as the neck of the uterus. All women above the age 30 yrs are at the risk of getting cervical cancer. It is one of the most prevalent cancers among women. The main causative agent for cervical cancer is Human Papilloma Virus (HPV) which is passed from one person to another through intercourse. At least half of the sexually active women will have HPV at some point in their lives but few women will get cervical cancer. Though a dreadful disease, it can be prevented by regular screening tests and vaccination. If detected at an early age, leads to long survival and better quality of life.

It is established that well-organized screening programs or taking preventive measures by every woman can reduce breast and cervical cancer incidence and in turn mortality. It is well established now that awareness about sexual and reproductive health behaviours as well as preventive measures for cancer like screening tests, (pap test for cervical cancer and mammography for breast cancer) is essential to empower women so that they can fight with these deadly diseases.

2. LITERATURE REVIEW

Azubuike & Okwuokei (2013)conducted a descriptive cross-sectional studyin Nigeria, on knowledge, attitude and practices of women regarding breast cancer. Purposive,

stratified and simple random sampling was used to select 365 women from 9 health facilities. The self administered questionnaire results revealed that 90.5% (314/347) have heard or read about breast cancer, while 76.3% know that breast cancer is the commonest cancer. Irrespective of the knowledge regarding breast cancer, only 15% had good knowledge regarding its risk factors. Only 49.71% had knowledge of 3 breast cancer risk factors. 65.2% subjects could identify two breast cancer signs and symptoms. Further 56.5% had knowledge of at least one early detection strategy.But only 17.73% subjects practiced regularly at least one of the early detective procedures. More than half (53.4%) showed poor level of practice in breast cancer prevention strategies like Breast self examination, Clinical breast examination and mammography. There was a strong association between practice of early detection strategies and knowledge (P = 0.01).

Sami, Ahmad,Riyadh,Kurubaran,Mohanad, Jalal &Shawqi (2011) conducted a cross sectional study among 250 Malaysian women to assess the awareness and knowledge of breast cancer and mammography. A self administrated questionnaire was given to subjects having questions on socio-demographic data, knowledge of breast cancer and awareness of mammography. Mean age of respondents was 28 ± 9.2 with 69.2% aged 18 to 29 years. 81.2% had heard about breast cancer and 55.2 % subjects indicated books, magazines and brochures as their source of information. It was found that majority of subjects did not have knowledge about signs and symptoms of breast cancer and many of its risk factors. Majority of them reported that aging(64.4%), nulliparity(76.4%), delivery at more than 30 yrs(76%), shorter duration of breast feeding(62%), contraceptive pills (66%), obesity (60%), big breast(88%), hormone replacement therapy(54.4%), menopause after age 50yrs(80%) and menarche before 11yrs of age (84.8%) could not be the risk factors. Most of them did not relate breast cancer with undergoing mammography(88.4%). It was concluded that most women were aware of breast cancer. However, the knowledge about signs and symptoms of breast cancer and awareness of mammography were inadequate.

Peter & Navkiran (2009) conducted a cross sectional survey on knowledge and health beliefs regarding cervical cancer screening among college students of Ghana. The sample comprised of 140 women aged 20-35 yrs which revealed that only 7.9% of the women were aware about the link between HPV (Human papilloma virus) and cervical cancer. Only 12% women underwent pap test. The commonest barriers for not undergoing screening was not knowing where to go (24.3%), belief that the test is painful(9.4%) and that everyone may think they are sexually active (24.6%).

Waller, McCaffery, Forrest, Szarewski, Cadman, &Wardle (2003) reported poor level knowledge of general public regarding HPV in the UK. Participants were 1032 women attending well women clinic in London between years 2000 to 2002. Knowledge regarding cervical cancer was very poor as only 316 (30%) women had heard of HPV. Among the ones who have heard of HPV (n=316), less than half knew

that HPV is the main cause of cervical cancer and only one third knew that genital warts does not cause cancer.

Review of literature shows that majority of studies conducted were to assess the knowledge of women regarding these two cancers. Though many studies recommended conducting various awareness programs to empower the women about these important health concerns, there was paucity of information where the effect of awareness program could be seen to empower women with adequate knowledge regarding breast and cervical cancer. Therefore the present study has been designed to fill the gap in literature review.

3. PROBLEM STATEMENT

Assessing the Impact of Awareness program on Breast and Cervical Cancer Knowledge Empowerment among Working Women in Education Sector

4. OBJECTIVES

The present study has following objectives;

1. To assess the knowledge regarding breast cancer and cervical cancer among working women of a selected private university of Punjab.
2. To conduct an awareness program to empower working women with knowledge on breast and cervical cancer in a selected private university of Punjab
3. To assess the effectiveness of awareness program on knowledge of working women regarding breast cancer and cervical cancer.
4. To find the difference in post test breast and cervical cancer knowledge scores of working women in regard to selected demographic variables such as age, educational qualification and marital status.
5. To find the difference in post test breast and cervical cancer knowledge scores of working women in regard to personal and family history of breast and cervical cancer.

5. RESEARCH HYPOTHESES

Following research hypotheses have been framed for the present research

H1: There is a significant impact of awareness program on breast cancer knowledge empowerment among working women

H2: There is a significant impact of awareness program on cervical cancer knowledge empowerment among working women

H3: There is a significant impact of selected demographic variables on knowledge of working women regarding breast cancer

    H3.1: Age of the women has significant impact on knowledge regarding breast cancer

H3.2: Educational Qualification of the women has significant impact on knowledge regarding breast cancer

H3.3: Marital status has significant impact on knowledge regarding breast cancer

H3.4: Number of children has significant impact on knowledge regarding breast cancer

H4: There is a significant impact of selected demographic variables on knowledge of working women regarding cervical cancer

H4.1: Age of the women has significant impact on knowledge regarding cervical cancer

H4.2: Educational Qualification of the women has significant impact on knowledge regarding cervical cancer

H4.3: Marital status has significant impact on knowledge regarding cervical cancer

H4.4: Number of children has significant impact on knowledge regarding cervical cancer

H5: Personal history of breast cancer has significant impact on knowledge regarding breast cancer

H6: Family history of breast cancer has significant impact on knowledge regarding breast cancer

H7: Personal history of cervical cancer has significant impact on knowledge regarding cervical cancer

H8: Family history of cervical cancer has significant impact on knowledge regarding cervical cancer

6. RESEARCH METHODOLOGY

Research approach and design

Quantitative research approach with one group pre-test post-test experimental design was used for the present study.

Target Population

Target population comprises of women working in education sector of Punjab.

Sample and Sampling Technique

The sample consisted of 110 women working in a private university of Punjab. The subjects were selected using simple random sampling technique.

Instruments for data collection

A self reported questionnaire on knowledge assessment regarding breast and cervical cancer was prepared. It comprises of three sections

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Section A: Demographic sheet

It has 8 items pertaining to demographic information of working women

Section- B: Self reported questionnaire on breast cancer

It has 35 items in which questions related to risk factors, signs & symptoms, diagnostic/screening tests and early detection & risk prevention strategies in breast cancer were included. Right answer was given score '1' and wrong '0'. So the total score of breast cancer ranged between 0 – 35.

Section C: Self reported questionnaire on cervical cancer

It has 35 items in which questions related to risk factors, signs & symptoms diagnostic/screening tests and early detection & risk prevention strategies in cervical cancer were included. Right answer was given score '1' and wrong '0'. So the total score of breast cancer ranged between 0 – 35.

7. CONTENT VALIDITY OF INSTRUMENT

The instrument was validated for appropriateness and relevance by the experts in the field of medicine and nursing. Some questions were modified based on recommendations of the experts. After the modification, 100% agreement was there among experts opinion.

8. METHOD OF DATA COLLECTION

The questionnaire was administered to the respondents to measure their baseline/ pre test knowledge regarding breast and cervical cancer. After the pre test, information on breast and cervical cancer was sent to all the respondents through e-mail which included the information on risk factors, sign and symptoms, diagnostic tests, early detection and preventive aspects. After three days, post test was conducted to measure the impact of information on knowledge empowerment of respondents.

9. DATA ANALYSIS

Data was analyzed using SPSS 16.0 version. Descriptive and Inferential statistics were used to analyze the results. Mean, standard deviation, frequency and percentage were used under descriptive statistics and correlation coefficient, t-test and ANOVA were used under inferential statistics.

10. RESULTS AND FINDINGS

Demographic Characteristics of Sample

The study included 110 women working in the education sector. Their demographic characteristics are shown in Table 1.

Table 1: Demographic Characteristics of Respondents N=110

Demographic Characteristics	Frequency (n)	Percentage
Age (Years)		
21-30	67	60.9
31-40	36	32.7
41-50	5	4.5
51-60	2	1.8
Educational Qualification		
Graduate	11	10.0
Postgraduate	92	83.6
Doctorate	07	6.4
Marital Status		
Married	61	55.2
Unmarried	47	42.7
Separated	02	1.8
Number of Children		
0	68	61.8
1	30	27.3
2	12	10.9

Table 1 shows that majority of respondents were in the age group of '21-30' (60.9%), followed by '31- 40' (32.7%) and '41-50' (4.5%) and only two (1.8%) respondents were in the age group of '51-60'. Educational Qualification wise, vast majority of respondents were postgraduate (83.6%) followed by Graduates (10.0%) and Doctorate (6.4%). Maximum number of respondents were married (55.2%) followed by Unmarried (42.7%) and separated (1.8%). 27.3 percentage of respondents had one child and 10.9 percentage of respondents had two children.

Personal and Family Health History

Table 2 shows the respondents' personal and family health history of breast and gynaecological problems.

Table 2 shows that Seven (6.4%) had the positive family history of breast cancer and 3.6 percentage of respondents had positive family history of cervical cancer. Further it was found that 4.5 percentage of respondents had personal history of breast problem and thirteen (11.8%) of respondents had personal history of gynaecological problems.

Table 2: Respondents' personal and Family Health History N =110

Item	Frequency	Percentage
Family history of breast cancer	7	6.4
Personal history of breast problem	5	4.5
Family history of cervical cancer	4	3.6
Personal history of any gynaecological problem	13	11.8

Respondents' Pretest and Posttest knowledge of Breast and Cervical Cancer

Respondents' knowledge regarding breast and cervical cancer was assessed before and after providing them with the information regarding risk factors, sign and symptoms, diagnostic tests and medical examination guidelines etc. Overall posttest and pretest breast cancer and cervical cancer knowledge scores are depicted in the table no. 3.

Table 3: Pretest and Posttest Mean Breast and Cervical Cancer knowledge Scores N=110

Variable	Mean ± SD	Range	t – value, df	p- value
Pretest Breast Cancer Knowledge	15.78 ± 6.61	1.00 - 32.00	7.19, 109	0.000*
Post test Breast Cancer Knowledge	22.63 ± 7.83	0.00 - 35.00		
Pretest Cervical Cancer Knowledge	14.81 ± 6.90	2.00 - 31.00	6.02, 109	0.000*
Post Test Cervical Cancer Scores	20.94 ± 7.99	0.00 – 34.00		

* significant at 0.05 level.

Table 3 shows that the pretest mean score of breast cancer knowledge among respondents was 15.78 ± 6.61 and the score increased to 22.63 ± 7.83 in the posttest. T-test showed that the pretest and posttest scores were significantly different [t (109)= 7.19, p<0.05]. Further the results showed that the pretest mean scores of cervical cancer knowledge was 14.81 ± 6.90 and increased to 20.94 ± 7.99, which was significantly different [t (109)= 6.02, p<0.05]. Therefore findings suggest that information on breast and cervical cancer was significantly effective in increasing the knowledge of respondents. So, based on the above findings research hypotheses H1 and H2 are accepted.

Respondents' Pretest & Posttest Knowledge scores in different aspects of Breast and cervical cancer

Respondents' knowledge was assessed in different aspects of breast cancer i.e risk factors, sign and symptoms, diagnostic techniques and routine examination for early detection. In the same way, different aspects of cervical cancer covered were; risk factors, sign and symptoms, diagnostic techniques and routine examination for early detection. Table 4 shows the mean scores in different aspects of breast cancer

Table 4: Pretest and Posttest scores in different aspects of Breast Cancer Knowledge N= 110

Breast cancer Knowledge Scores	Mean ± SD	t – value, df	p- value
Pretest scores: Risk Factors Posttest scores of Risk Factors	4.95 ± 2.20 6.68 ± 2.89	**4.72, 109**	**0.000***
Pretest scores: Sign & Symptoms Pretest scores: Sign & Symptoms	5.85 ± 3.49 8.45 ± 3.31	**5.86, 109**	**0.000***
Pretest scores: diagnostic techniques Pretest scores: diagnostic techniques	2.51 ± 1.41 3.22 ± 1.47	**3.79, 109**	**0.000***
Pretest scores: Risk prevention strategies Posttest scores: Risk prevention strategies	2.09 ± 1.16 3.49 ± 1.61	**7.53, 109**	**0.000***

*significant at 0.05 level.

knowledge in pretest and posttest scores and Table 5 shows the scores of cervical cancer aspects. t-test was used to analyze the difference between pretest and posttest scores.

Table 4 shows that respondents' scores in all the aspects of breast cancer knowledge improved significantly in posttest, which shows that awareness program on breast cancer was significantly effective in improving the knowledge of respondent.

Table 5 shows that respondents' scores in all the aspects of cervical cancer knowledge improved significantly in posttest, which shows that awareness program on cervical cancer was significantly effective in improving the knowledge of respondent.

Table 6 shows that in the mean pretest knowledge of performing breast self examination was 0.363 and mean posttest knowledge of breast self examination was 0.781. Further t-test shows that mean knowledge of performing breast self examination increased significantly in the posttest compared to pretest knowledge [t(109)=7.55, p<0.05].

Difference in posttest scores in regard to selected demographic variables
Post test scores were compared in regards with different categories of demographic variables. ANOVA was used to analyze the difference of posttest scores according to selected demographic variables**.**

Table 7 shows that mean posttest scores of breast cancer did not differ significantly according to age categories [F(3,106)= 0.387 , p>0.05], educational qualification [F(2,107)= 0.990 , p>0.05]and marital status [F(2,107)= 2.929, p>0.05] . Therefore

Table 5: Pretest and Posttest scores in different aspects of Cervical Cancer Knowledge. N= 110

Cervical Cancer Knowledge Scores	Mean ± SD	t – value, df	p- value
Pretest scores: Risk Factors	5.79± 3.15	**3.70, 109**	**0.000***
Posttest scores: Risk Factors	7.50 ± 3.29		
Pretest scores: Sign & Symptoms	4.33 ± 2.49	**5.18, 109**	**0.000***
Pretest scores: Sign & Symptoms	6.20 ± 2.88		
Pretest scores: diagnostic techniques	1.90 ± 1.70	**4.33, 109**	**0.000***
Pretest scores: diagnostic techniques	2.87 ± 1.64		
Pretest scores: Risk prevention strategies	2.79 ± 1.81	**6.75 , 109**	**0.000***
Posttest scores: Risk prevention strategies	4.36 ± 1.91		

*significant at 0.05 level.

Table 6: Respondents' Knowledge regarding Breast Self Examination N=110

Variable	Pretest Knowledge	Posttest Knowledge	t-value, df	p-value
Breast Self examination Knowledge	0.363	0.781	7.55, 109	**0.000***

Table 7: Mean scores Difference in Breast Cancer Posttest Knowledge in regard to selected demographic variables N=110

Demographic Variables	Frequency (N)	Mean Scores	F- value (df)	p-value
Age				
21-30	67	23.25	0.387	0.762
31-40	36	21.61	(3, 106)	
41-50	5	22.60		
51-60	2	20.50		
Educational Qualification				
Graduate	11	20.18	0.990	0.375
Postgraduate	92	22.71	(2, 107)	
Doctorate	7	25.42		
Marital status				
Married	61	22.47	2.929	0.058
Unmarried	47	23.38	(2,107)	
Separated	2	10.00		

Table 8: Mean Scores Difference in Cervical Cancer Posttest Knowledge in regard to selected demographic variables N = 110

Demographic Variables	Frequency (N)	Mean Scores	F- value (df)	p-value
Age				
21-30	67	21.64	1.499	0.219
31-40	36	19.25	(3, 106)	
41-50	5	25.60		
51-60	2	16.50		
Educational Qualification	11	17.54	1.374	0.257
Graduate	92	21.16	(2, 107)	
Postgraduate	7	23.42		
Doctorate				
Marital status				
Married	61	21.04	3.008	0.054
Unmarried	47	21.38	(2,107)	
Separated	2	07.50		

age, educational qualification and marital status had no impact on posttest breast cancer knowledge scores and research hypothesis H3 is rejected.

Table 8 shows that mean posttest scores of cervical cancer did not differ significantly according to age categories [F(3,106)= 1.499 , p>0.05], educational qualification [F(2,107)= 1.374 , p>0.05]and marital status [F(2,107)= 3.008 , p>0.05]. Therefore age, educational qualification and marital status had no impact on posttest cervical cancer knowledge scores and research hypothesis H4 is rejected.

Table 9: Mean Scores Difference in Breast and Cervical Cancer Posttest Knowledge in regard to personal and family history N =110

Demographic Variables		Frequency (N)	Mean Scores	t- value, df	p-value
Family History of Breast Cancer	Yes	7	25.42 ± 4.72	0.974,	0.332
	No	103	22.44 ± 7.98	108	
Family History of Cervical Cancer	Yes	04	22.75 ± 7.93	0.458,	0.648
	No	106	20.87 ± 8.03	108	
Personal History of Breast problem	Yes	5	25.60 ± 5.72	0.865,	0.389
	No	105	22.49 ± 7.91	108	
Personal History of Gynaecological problem	Yes	13	19.84 ± 5.36	0.526,	0.600
	No	97	21.09 ± 8.29	108	

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Table 9 shows that mean posttest scores of breast cancer knowledge were not significantly different in regard to Family history of breast cancer [t(108)=0.974, p<0.05] and personal history of breast problem [t(108)=0.865, p<0.05]. Further, mean posttest scores of cervical cancer knowledge were also not significantly different in regard to family history of cervical cancer [t(108)=0.458, p<0.05] and personal history of gynaecological problem [t(108)=0.526, p<0.05] . Therefore family and personal health history had no impact on posttest mean scores of breast and cervical cancer knowledge and research hypotheses H5, H6, H7 and H8 are rejected.

11. DISCUSSION

In the present study, it was found that baseline or pretest knowledge of working women was not satisfactory, the same findings were reported by Sadler, Dhanjal, Bhatia, Bihari, Celine, Anghel, & Harshburger (2008). In this study, they found that American Indian women reported that they had inadequate knowledge regarding breast cancer. Similar findings were reported by Somadatta & Baridalyne (2008) also, they included 333 women residing urban resettlement colony and found that women's knowledge regarding breast cancer was inadequate and there was need for awareness generation programs. But a study conducted by Awasthy, Quereshi, Kurian, & Leelamoni (2012) found that three fourth of population knew that cervical cancer could be detected by early screening but they were not aware that it should be done even if there are no symptoms or problem.

Further, the knowledge regarding risk factors, sign & symptoms and preventive strategies of breast cancer was inadequate among women. Similar findings were reported by Puri, Mangat, Bhatia, Kalia, Sehgal, &Kaur (2008) as they concluded that women were knowledge deficit about breast cancer and various factors associated with it. Therefore findings of present study depicted a wide gap in the knowledge of women regarding breast and cervical cancer. Therefore present study particularly shows that even the educated women are not aware regarding the risk factors, sign & symptoms and preventive aspects of breast and cervical cancer. Although in India, now a days, many efforts are being taken to make the communities aware regarding these deadly cancers through media and community level health education programs but still we are way back in improving the knowledge of women regarding these two important cancers and number of studies have already shown that early detection of these cancers is very important to decrease the incidence but as women are not aware regarding detection techniques and when and where they have to undergo these test, so majority of them do not go for early detection tests for breast and cervical cancers. In the present study, the knowledge of women increased significantly after they were provided with the information regarding these cancers.

12. CONCLUSION

Breast and cervical cancer screening awareness is main agenda on the national programs but despite of these all awareness campaigns, the knowledge of literate women is inadequate, so we can imagine that knowledge of rural women might be even

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more inadequate. Therefore there is need for strengthening the awareness programs regarding breast and cervical cancers at national, community and individual levels through which cancer screening practices among women need to be strengthened and knowledge regarding age appropriate screening tests for breast and cervical cancer should be given.

Study Limitation: The sample size was small and sample was selected from only one university. Large sample can be used to generalize the findings.

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