



Rajani Ranganath<sup>1\*</sup>, Miriam A Simon<sup>2</sup>, John C Muthusami<sup>3</sup>

<sup>1</sup>Department of Pathology, College of Medicine & Health Sciences, National University of Science & Technology, P.C 321 Sohar, Sultanate of Oman

<sup>2</sup>Department of Psychiatry and Behavioural Science, College of Medicine & Health Sciences, National University of Science & Technology, P.C 321, Sohar, Sultanate of Oman

<sup>3</sup> Department of Surgery, College of Medicine & Health Sciences, National University of Science & Technology, P.C 321, Sohar, Sultanate of Oman

\*College of Medicine & Health Sciences, National University of Science & Technology, Muwaylah St, P O Box 391, P.C 321 Sohar, Sultanate of Oman

Tel: +968 91033266

E-mail: rajaniranganath@nu.edu.om

### Interprofessional Learning: Medical and Nursing Students Experience of Participating in Breast Cancer Awareness Workshop

**Background:** The purpose of the study was to analyse interprofessional learning experience and the overall experience of the breast cancer awareness workshop among undergraduate medical and nursing students.

**Method:** This was a cross-sectional study using mixed method design. The study was carried out for medical students of College of Medicine and Health Sciences, National University of Science and Technology, Oman and nursing students of Sohar Nursing Institute and the North Batinah Nursing Institute in November 2019. A total of 170 students attended the breast cancer awareness workshop. Out of which 105 (55 -medical and 50 - nursing) students filled the post workshop survey questionnaire. Thematic content analysis was done for open ended questions and quantitative type questions were analysed using SPSS software version 22.

**Results:** The feedback survey looked on four domains of learning experience 1) Interprofessional experience: students of nursing (54.8%) preferred to have frequent inter-professional training sessions when compared to medical students (6.2%) (P-value < 0.001). 2) Teaching-learning strategies used: Hand-on activities (Breast self-examination activity on breast model method) was more preferred method when compared to others. 3) Personal: Students expressed to have improved knowledge on breast cancer and breast self-examination. 4) Overall experience: 96.1 % students agreed that the workshop was organized well and 98% felt the information was presented clearly.

**Conclusion:** Interprofessional education is essential for collaborative practice in future which is important for quality of care and patient safety. Breast cancer and breast self-examination awareness programs can be a convenient way of initiating interprofessional education among health care students.

**Keywords:** Awareness, Breast cancer, Breast Self-Examination, Collaborative practice, Interprofessional learning, Medical Students, Nursing Students

### یادگیری میان رشته ای: تجربه دانشجویان پزشکی و پرستاری از شرکت در کارگاه آگاهی بخشی سرطان پستان

**زمینه و هدف:** هدف از این مطالعه، تحلیل تجربه یادگیری میان رشته ای و تجربه کلی کارگاه آگاهی از سرطان پستان بین دانشجویان پزشکی و پرستاری در مقطع کارشناسی بود. **روش:** این مطالعه مقطعی با استفاده از طرح ترکیبی انجام شد. در مجموع ۱۷۰ دانشجوی در کارگاه آموزشی آگاهی از سرطان پستان شرکت کردند. از این تعداد ۱۰۵ نفر (۵۵ نفر پزشکی و ۵۰ نفر پرستاری) پرسشنامه نظرسنجی پس از کارگاه را تکمیل کردند. تحلیل محتوای موضوعی برای سوالات باز و سوالات از نوع کمی با استفاده از نرم افزار SPSS نسخه ۲۲ انجام شد.

**یافته‌ها:** نظرسنجی بازخورد چهار حوزه تجربه یادگیری را بررسی کرد. ۱) تجربه میان رشته ای: دانشجویان پرستاری (۵۴/۸ درصد) ترجیح می‌دهند در مقایسه با دانشجویان پزشکی (۶/۲ درصد) جلسات آموزشی میان رشته ای مکرر داشته باشند ( $P < 0.001$ ). ۲) راهبردهای یاددهی-یادگیری مورد استفاده: فعالیت های عملی (فعالیت خودآزمایی پستان به روش مدل سینه) در مقایسه با سایر روش ها ارجح تر بود. ۳) تجربه شخصی: دانشجویان اظهار داشتند که دانش آنها در مورد سرطان پستان و خودآزمایی پستان افزایش داشته است. ۴) تجربه کلی: ۹۶/۱ درصد دانشجویان موافق بودند که کارگاه به خوبی سازماندهی شده بود و ۹۸ درصد احساس کردند که اطلاعات به وضوح ارائه شده است.

**نتیجه‌گیری:** آموزش میان رشته ای برای فعالیت های مشترک در آینده ضروری است چراکه در کیفیت مراقبت و ایمنی بیمار مهم است. سرطان پستان و برنامه های آگاهی از خودآزمایی پستان می تواند راه مناسبی برای شروع آموزش میان رشته ای بین دانشجویان مراقبت های بهداشتی باشد.

**واژه های کلیدی:** آگاهی، سرطان پستان، خودآزمایی پستان، تمرین مشارکتی، یادگیری میان رشته ای، دانشجویان پزشکی، دانشجویان پرستاری

### التعلم المهني: تجربة طلاب الطب والتمريض في المشاركة في ورشة عمل التوعية بسرطان الثدي

**الخلفية:** كان الغرض من الدراسة هو تحليل تجربة التعلم بين المهنيين والتجربة الكلية لورشة عمل التوعية بسرطان الثدي بين طلاب الطب والتمريض الجامعيين. **الطريقة:** هذه دراسة مقطعية باستخدام تصميم طريقة مختلطة. حضر ما مجموعه 170 طالبة ورشة عمل التوعية بسرطان الثدي. قام 105 طالب منهم (55- طبي و 50- تمريض) بملاء استبيان ما بعد ورشة العمل. تم إجراء تحليل المحتوى الموضوعي للأسئلة المفتوحة وتم تحليل أسئلة النوع الكمي باستخدام الإصدار 22 من برنامج SPSS.

**النتائج:** بحث استطلاع الآراء في أربعة مجالات لتجربة التعلم (1) الخبرة المهنية: فضل طلاب التمريض (54.8%) الحصول على دورات تدريبية متكررة بين المهنيين بالمقارنة مع طلاب الطب (6.2%) (قيمة P < 0.001). 2) استراتيجيات التدريس والتعلم المستخدمة: كانت الأنشطة العملية (نشاط الفحص الذاتي للثدي على طريقة نموذج الثدي) أكثر الطرق المفضلة عند مقارنتها بالآخرين. 3) الشخصية: أعرب الطلاب عن تحسين معرفتهم بسرطان الثدي والفحص الذاتي للثدي. 4) التجربة الإجمالية: وافق 96.1% من الطلاب على أن ورشة العمل تم تنظيمها بشكل جيد وشعر 98% أن المعلومات قدمت بوضوح.

**الخلاصة:** التعليم المهني ضروري للممارسة التعاونية في المستقبل وهو أمر مهم لجودة الرعاية وسلامة المرضى. يمكن أن تكون برامج التوعية بسرطان الثدي والفحص الذاتي للثدي طريقة ملائمة لبدء التعليم المهني بين طلاب الرعاية الصحية.

**الكلمات المفتاحية:** التوعية، سرطان الثدي، الفحص الذاتي للثدي، الممارسة التعاونية، التعلم المهني، طلاب الطب، طلاب التمريض

### انتر پروفیشنل لرننگ: میڈیکل اور نرسنگ طلباء کا بریسٹ کینسر آگاہی ورکشاپ میں شرکت کا تجربہ

**پس منظر:** مطالعہ کا مقصد بین پیشہ ورانہ سیکھنے کے تجربے اور انڈرگریجویٹ میڈیکل اور نرسنگ طلباء کے درمیان چھاتی کے کینسر سے متعلق آگاہی ورکشاپ کے مجموعی تجربے کا تجزیہ کرنا تھا۔

**طریقہ:** یہ مخلوط طریقہ ڈیزائن کا استعمال کرتے ہوئے ایک کراس سیکشنل مطالعہ تھا۔ یہ مطالعہ کالج آف میڈیسن اینڈ ہیلتھ سائنسز، نیشنل یونیورسٹی آف سائنس اینڈ ٹیکنالوجی، عمان کے میڈیکل طلباء اور سہر نرسنگ انسٹی ٹیوٹ اور نارتھ بطینہ نرسنگ انسٹی ٹیوٹ کے نرسنگ طلباء کے لئے نومبر ۲۰۱۹ میں کیا گیا تھا۔ مجموعی طور پر ۱۷۰ طلباء نے چھاتی کے کینسر میں شرکت کی۔ آگاہی ورکشاپ۔ جن میں سے ۱۰۵ (۵۵ - میڈیکل اور ۵۰ - نرسنگ) طلباء نے ورکشاپ کے بعد سروے کا سوالنامہ پُر کیا۔ موضوعاتی مواد کا تجزیہ کھلے سوالات کے لیے کیا گیا اور SPSS سافٹ ویئر ورژن ۲۲ کا استعمال کرتے ہوئے مقداری قسم کے سوالات کا تجزیہ کیا گیا۔

**نتائج:** فیڈ بیک سروے میں سیکھنے کے تجربے کے چار ڈومینز پر نظر ڈالی گئی (۱) انٹر پروفیشنل تجربہ: نرسنگ کے طلباء (۵۴.۸%) نے میڈیکل طلباء (۶.۲%) (P < 0.001) کے مقابلے میں اکثر انٹر پروفیشنل ٹریننگ سیشنز کو ترجیح دی۔ ۲) تدریس سیکھنے کی حکمت عملی استعمال کی گئی: دوسروں کے مقابلے میں ہاتھ سے چلنے والی سرگرمیاں (چھاتی کے ماڈل کے طریقہ کار پر چھاتی کی خود جانچ کی سرگرمی) زیادہ ترجیحی طریقہ تھا۔ ۳) ذاتی: طلباء نے چھاتی کے کینسر اور چھاتی کے خود معائنہ کے بارے میں بہتر معلومات حاصل کرنے کا اظہار کیا۔ ۴) مجموعی تجربہ: ۹۶.۱% طلباء نے اتفاق کیا کہ ورکشاپ اچھی طرح سے منعقد کی گئی تھی اور ۹۸% نے محسوس کیا کہ معلومات کو واضح طور پر پیش کیا گیا ہے۔

**نتیجہ:** بین پیشہ ورانہ تعلیم مستقبل میں باہمی تعاون کے لیے ضروری ہے جو کہ دیکھ بھال کے معیار اور مریض کی حفاظت کے لیے اہم ہے۔ چھاتی کا کینسر اور چھاتی کا خود معائنہ بیداری کے پروگرام صحت کی دیکھ بھال کرنے والے طلباء کے درمیان بین پیشہ ورانہ تعلیم شروع کرنے کا ایک آسان طریقہ ہو سکتے ہیں۔

**کلیدی الفاظ:** آگاہی، چھاتی کا کینسر، چھاتی کا خود معائنہ، باہمی تعاون کی مشق، بین پیشہ ورانہ تعلیم، طبی طلباء، نرسنگ طلباء

## INTRODUCTION

The new learning paradigms for healthcare professionals is focusing more on patient safety and quality of care by boosting the ways to combine expertise and delivery of Interprofessional learning (IPL) programs (1). Students will be better prepared for a teamwork when collaborative activities with IPL are being introduced at the beginning and throughout the training program. Interprofessional learning will be a good approach to prepare students to work in multi professional health care environment. Major importance for Interprofessional education (IPE) is being given by many institutions in recent times (2).

It has become imperative for practitioners to work in an interprofessional, patient centered teams when planning and delivering treatment. Effective collaboration, mutual trust, shared goals, and open interaction between professions are essential for delivery of a quality care treatment. Introduction of Interprofessional education in early academic years can help achieve this task and prepares the students from different professions to learn about, with and from each other (3).

The increase in the global incidences of breast cancer is worrisome. These breast cancer patients have complex health issues and require more than one discipline to address their concerns. Interprofessional teamwork can boost the awareness programs in early detection of breast cancer. In IPL environment students can share their knowledge, interact, and understand the roles and responsibility, learn to communicate, and collaborate for effective practice in future. Learning best happens with social activities (4). Social interactions are better ways to build the bonding and empathy. Interprofessional Health education program on the breast cancer awareness and breast self-examination will not only help them improve knowledge and modify their behavior towards early detection but also influences the students' perceptions and attitudes towards IPL and help them to prepare for future collaborative practice (5).

The purpose of this study was to analyze the interprofessional learning and overall learning experience of the breast cancer awareness workshop among the medical and nursing students

## METHODS

This was a cross-sectional study done using mixed method design. A total of 170 students attended the breast cancer awareness workshop. The workshop was conducted for 2 days in the medical college. On each day of the program, there was a common lecture session and small group activities. The program also focused on the roles and responsibilities of the doctors and the nursing staffs in dealing the breast cancer screening and creating awareness among the women. The presentations and activities were delivered by multi-professional health team comprising of surgeon, pathologist, psychologist, and nursing faculty. After the training program the students were given the post workshop feedback survey form. The present study was based on the post workshop feedback survey. Approval was obtained from the Research and Ethics Committee to

conduct the study (CMHS/REC/038/19/C).

The study was done for 90 medical students (premedical and preclinical) from College of Medicine and Health Sciences, National University of Science and Technology, Oman and 80 Bachelor of Science (BSc) nursing students from Sohar Nursing Institute and the North Batinah Nursing Institute in November 2019. 105 (55 -medical and 50 – nursing) students filled the post workshop feedback survey questionnaire. Clinical year students, and students who did not provide consent to participate in the study were excluded.

For the difference of means in a paired sample, the prior sample size was computed as 54 using G\*Power ver. 3.1.9.4 (Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany; <http://www.gpower.hhu.de/>), with the following assumptions: tails=2, effect size (dz) =0.5,  $\alpha$  error probability=0.05, and power (1- $\beta$  error probability) =0.95. Thus, the sample sizes of 80 and 90 in each group were sufficient.

All the participants were given feedback form to fill after the workshop and debriefing. The instructors collected the completed feedback form. For the feedback questionnaire, comprehensive review of literature was done. The feedback questionnaire consisted of 10 quantitative and 3 qualitative items (open-ended type) on the interprofessional learning, teaching -learning methods, personal learning, and overall learning experience of the breast cancer awareness workshop. For quantitative items, scoring was done using Likert scale. Scores of five, four, three, two and one for “strongly agree”, “agree”, “neutral”, “disagree” and “strongly disagree”, respectively. The qualitative data was analyzed by inductive content analysis. Firstly, the articulations were simplified and grouped according to their content. Simplified expressions with similar content were grouped and classified into subcategories which were named according to their content.

A Cronbach's alpha value of 0.845 was obtained for the 10 (quantitative) items of the feedback questionnaire indicating a good level of internal consistency. Results of the Shapiro-Wilk test of normality for all survey items (p-value <0.001) indicated that participant's responses were not normally distributed.

Data collected was analyzed using SPSS 22. Descriptive data was presented as Frequency and Percentage while continuous data is presented as mean and standard deviation. Descriptive and thematic analysis was done for open ended questions. Chi-square and Pearson correlation was done to look for statistical significance.

## RESULTS

Results from 105 participants were analyzed. The average age of participants was 22 years. 52.4% (55) of participants were medical students, while 47.6% (50) were from the college of nursing.

### *Results across 4 themes/domains*

#### **1. Inter-professional Learning Experience**

Participants' feedback on their inter-professional learning experience during the workshop was obtained from two (closed-ended) survey items and one (open-ended) qualitative item. Participants indicated that they had a good experience learning along with students from other health

professions (M= 4.596; S.D. = 0.548) as mentioned in table 1. There was no significant difference in the learning experience reported by students of medicine and nursing for this session/workshop (p-value =0.171). 61% of participants indicated that they would prefer to have similar inter-professional training sessions in the future. Chi square analysis indicated that students of nursing (54.8%) preferred to have frequent inter-professional training sessions when compared to medical students (6.2%) (P-value <0.001) as mentioned in table 3. Thematic analysis indicated that participants preferred to have inter-professional sessions with students not only from medicine and nursing, but also from pharmacy, dentistry, lab technology and engineering.

**2. Teaching Learning Strategies**

Feedback on the teaching-learning strategies used during the workshop was taken up by five survey items. The mean score across these items was 4.476 as mentioned in table 1, indicating that participants were highly positive regarding the teaching-learning strategies used during the session.

Results from the Table1 indicate that participants appreciated all the teaching-Learning methods and collaborative learning during the breast self-examination activity was most preferred among all. There was no significant difference in the preference of teaching-learning modalities between medical and nursing students.

Table 1. Mean feedback score specific to the four domains of learning experiences	
Domains of learning experiences	Mean (S.D.)
Inter-professional Learning Experience	4.596 (0.548)
Teaching-Learning Strategy	
a) Interactive Lecture	4.510 (0.607)
b) Audio-Visual presentation	4.404 (0.731)
c) Small Group Activity	4.692 (0.503)
d) Survivor’s Story	4.225 (0.743)
Personal Learning Experience	4.567 (0.517)
Overall Experience	
a) Session organization	4.562 (0.603)
b) Information presentation	4.705 (0.498)

**3. Personal Learning Experience**

Feedback on the personal learning experience of students during the session was assessed using one (closed-ended) survey item and one (open-ended) qualitative item. The mean score of participants across this domain was 4.567 (S.D.: 0.517) as mentioned in table 1, indicating the session stimulated interest in most of the participants. 100% of the medical students and 98% of nursing students agreed that session was interesting and motivating as mentioned in table 2. Chi square analysis indicated no significant difference in the learning experience of students from medicine and nursing (p-value=0.443). Students from both medicine and nursing showed interest in the session.

Thematic analysis of participants’ responses to highlight

important aspects of their experience/ learning generated four main themes/areas of learning.

**Information on breast cancer (M-Medical, N-Nursing):**

“I was excited to know new information’s on breast cancer” (N)  
 “I got to know that breast cancer can occur at younger age” (N)  
 “One out of five women gets breast cancer worldwide” (M)  
 “The information on signs and symptoms of breast cancer was helpful” (M)

**Procedure for breast self-examination**

“Got very useful message on how to perform breast self-examination” (M, N)

“Importance of BSE in early detection of breast cancer” (M)

“Don’t examine the breast few days before the exam “(M)

“It is necessary to do BSE monthly and regularly” (N)

**Risk factors pertaining to the development of breast cancer**

“It was interesting to know the various factors that are of risk in developing breast cancer” (N)

“I did not know that pregnancy can reduce the risk of breast cancer” (M)

**Improved attitude relating to self-care.**

“Give up is never an option, to be optimistic in life” (N)

“Health is more important than appearance” (N)

“My health is my responsibility; I need to care of...” (M)

“Amazing to know the myths and facts of breast cancer, changed my perspective on breast cancer” (M)

“Prevention is better than cure” (N)

Participants gained knowledge on the prevalence, signs and symptoms, types, risk, and protective factors of breast cancer. Students also reported improved knowledge of the procedure, frequency, and benefits of performing breast self-exam. They also obtained more awareness of the myths and social stigma associated to breast cancer & the importance of self-care.

**4. Overall Experience**

The overall experience of participants during the inter-professional session was assessed using two survey questions and one open-ended item. Most of the participants indicated that the session was well-organized (M=4.562; S.D.=0.603) and that the information was well-presented (M= 4.705; S.D.=0.498) as mentioned in table 1. 96.4% medical students and 96 % nursing students agreed that the session was well organized as mentioned in table 2. Chi square analysis indicated no significant difference in the overall experience among medical and nursing students across both survey items.

Three themes emerged regarding students’ overall experience during the inter-professional workshop:

Organization of the session highlighted the interactive/ collaborative learning experience among students of medicine and nursing. Participants also appreciated the fun-filled presentation of information and the enthusiasm of the presenters/doctors/resource persons.

“Overall, the workshop was fun and with full of information, got to know many things” (M)

“It was very nice experience of getting medical and nursing together on same platform” (N)

“I was really impressed with enthusiasm and care of taken by the presenters/organizers “(M)

<b>Table 2. Learning experiences of Medical and Nursing students (Medical students: n=55, Nursing students: n=50)</b>											
Learning Experience	Strongly Agree n(%)		Agree (%) n(%)		Neutral (%) n(%)		Disagree (%) n(%)		Strongly disagree n(%)		
	Medical	Nursing	Medical	Nursing	Medical	Nursing	Medical	Nursing	Medical	Nursing	
Interprofessional Learning Experience											
Good experience to learn along with other profession	36(65.5)	29(59.2)	19(34.5)	17(34.7)	0	3(6.1)	0	0	0	0	
Teaching Learning Strategies											
Lecture	28(50.9)	31(62)	21(38.2)	19(38)	6(10.9)	0	0	0	0	0	
Audio-visual	30(54.5)	25(51)	17(30.9)	22(42.9)	6(14.5)	3(6.1)	2(3.6)	0	0	0	
Small group activity	39(70.9)	30(60)	13(24.55)	19(38)	3(4.55)	1(2)	0	0	0	0	
Story telling method	24(43.6)	28(29.8)	21(38.2)	64(68.1)	6(10.9)	1(2.1)	4(7.3)	0	0	0	
Personal Learning Experience											
Interesting and motivating	32(59.3)	28(56)	22(40.7)	21(42)	0	1(2)	0	0	0	0	
Overall Learning Experience											
Session was apt and well organized	33(60)	31(62)	20(36.4)	17(34)	1(1.8)	2(4)	1(1.8)	0	0	0	
Information was presented clearly	38(69.1)	38(76)	15(27.3)	12(24)	2(3.6)	0	0	0	0	0	

<b>Table 3. Interprofessional learning experiences</b>				
Wish to have similar sessions in future	Students		Total	P-Value
	Medical	Nursing		
Yes	45	19	64	0.000
No	3	23	26	
Total	48	42	90	

Lecture session/Presentation that helped in improving participants' knowledge. The interactive nature of the lecture session was emphasized.

"My knowledge and understanding of breast cancer and BSE improved a lot" (N)

"I felt the organizers/presenters took utmost care to make the workshop interesting and interactive" (N)

Small group session focused on collaborative interaction and hands-on activities. Participants reported that they preferred to participate in sessions which included hands-on activities.

"I liked everything about the workshop" (M, N)

"The breast models and clay activities made the Small group activities very exiting" (M)

"We need many more such activities in future" (M)

Results from Table 2 as a survey obtained from participants' feedback showed overall satisfaction across all the four domains. However statistical analysis showed students' preference to have inter-professional teaching/training sessions in the future was not significantly correlated to most of the other test items.

## DISCUSSION

IPE programs are deemed to be successful, when it brings

about the changes in attitudes, beliefs, knowledge, and teamwork of the participants. This can be achieved by proper organization and implementation of the program (6). Health education programs like breast cancer awareness workshops with an interprofessional team approach can enhance participation from various health professions (7).

It is important to keep in mind, the expectations of participants while designing for the health education workshops as within a short period is important to achieve the goal, understanding and awareness of the health concept that the workshop has intended to do. Feedback surveys of the workshop plays an important role in knowing the effectiveness of the workshop and gives the opportunity for further improvement.

Workshops are an efficient way to deliver certain topics. Generally, the workshops are likely to be highly interactive allowing active involvement of the participants and assist learning from one another as well as from the workshop leaders (8). The participants in the present study had given positive feedback on their learning experiences, they had in the breast cancer workshop.

In recent times it is seen that there is gradual shift in the paradigm within health and social care practice, requiring collaborative and interprofessional working (9). As a result,

the education in the health care sector is emphasizing on the importance of interprofessional learning; this has been supported by government policy advocating the importance of professionals understanding and respecting each other's roles (10). Interprofessional learning should take place at an early stage in professional education and is best done both in practice placements and on campus. It is observed that students are enthralled when given opportunities to participate in shared interprofessional learning experiences (11). There are six categories of interprofessional education outcomes: reaction to interprofessional education; attitudes / perceptions of other professionals and of teamwork; knowledge /skills associated with other professionals; behavior; organizational practice; and patient benefit. The first three outcomes are closely related to undergraduate education. These learning experiences are about consciousness raising, preparation for future practice, and a contribution to professional socialization (12).

Interprofessional collaboration is important to address patient quality care. Efforts are being made, to prepare effective health team to work together systematically in relation to the roles and functions of each profession. This can be achieved by inculcating interprofessional learning practice early in their career. The present study also promoted interprofessional education through breast cancer awareness workshop. Both medical and nursing students expressed that they had a good interprofessional learning experiences in the breast cancer workshop conducted. In a comparative study on perception of the delivery of a patient safety course from both uniprofessional and interprofessional it was found that those students who participated in the interprofessional course gained appended value from these interactions and felt that they can work better within the interprofessional team (13). In the present study 61% of participants preferred to have similar inter-professional training sessions in the future. Nursing students preferred to have frequent inter-professional training sessions when compared to medical students. This finding is similar to the study done by Jaideep S. et.al which showed that Readiness for Interprofessional Learning Scale (RIPLS) score was higher in nursing students when compared to medical students (14). The participants in this study preferred to have inter-professional sessions with students from pharmacy, dentistry, lab technology, and engineering as well.

The type of teaching learning strategy used, play a major role in bringing the impact on participants. Learning is an active process; The presenters must display diligently to make this knowledge-sharing process more enjoyable and easier for comprehension. Traditional lecture presentations are more suitable for large crowds but with significant amounts of information it makes difficult to retain, remember, and interpret (15, 16). Hence, small group teaching has become increasingly well accepted method of teaching within medical and health professions education. Effective small group teaching and learning strategies increase student engagement, retention of knowledge, self-directed learning,

communication skills, teamwork ability, and peer discussion when compared to large group teaching (17). In the present study, small group activity was used to teach breast self-examination. Among the different teaching learning modalities that were used to teach students, hands on training in small group was more liked by the students. Similar observation was made by Lama P et al. in the study to know the effectiveness of small and large group teaching and learning process for 1st year medical students (18). Creation of an encouraging and supportive learning environment in any teaching pursuit will actively engage the participants in learning activities carried out. Small group teaching offers an effective mechanism to facilitate IPE in the classroom (19). Students in the present study had a good personal learning experience, the breast cancer workshop had created excitement and curiosity, and provided great deal of information about the breast cancer, breast self-examination procedures and risk factors provided.

The overall experience of the students showed that the workshop was very well organized and the information of breast cancer, its risk factors, signs, symptoms, and breast self-examination for early detection was presented well. The information provided by the presenters were useful and they had gained a lot of knowledge and showed willingness to practice breast self-examination in future.

The findings of the study showed that IPL was well accepted in positive way both by medical and nursing students. This suggests that IPL interventions by health awareness programs can be effective in fostering positive attitudes towards working interprofessionally. However, this study was limited only to nursing and medical profession students. More studies need to be carried to explore the perception of other health professions.

Health awareness programs like breast cancer and breast self-examination awareness workshop can be a better way to promote Interprofessional education. This type of approaches can give opportunity for interprofessional learning which is essential for collaborative practice in future. Therefore, importance needs to be given for implementing more of Interprofessional education related teaching activities. Interprofessional education preferences was seen more with nursing than medical students. It is important to motivate medical students for Interprofessional learning so that they get acquainted with Interprofessional practice in future. The study showed that students had a valuable learning experience on breast cancer and breast self-examination as well as positive interprofessional learning experience.

**Ethical considerations:** Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors.

**Financial Support:** None.

**Conflict of interest:** None.

REFERENCES

1. Green BN, Johnson CD. Interprofessional collaboration in research, education, and clinical practice: working together for a better future. *J Chiropr Educ.* 2015; 29:1-10.
2. Buring SM, Bhushan A, Brazeau G, Conway S, Hansen L, Westberg S. Keys to successful implementation of Interprofessional education: learning location, faculty development, and curricular themes. *Am J Pharm Educ.* 2009; 73(4):60.
3. Thistlethwaite, J. Interprofessional education: implications and development for medical education. *Educ Med.* 2015;68-73:16
4. Reeves S. Why we need interprofessional education to improve the delivery of safe and effective care. *Interface (Botucatu).* 2016; 20: 185-97.
5. Tan CE, Jaffar A, Tong SF, Hamzah MS, Mohamad N. Comprehensive healthcare module: medical and pharmacy students' shared learning experiences. *Med Educ Online.* 2014; 19.
6. Jorm C, Roberts C, Lim R, Roper J, Skinner C, Robertson J, et al. A large-scale mass casualty simulation to develop the non-technical skills medical students require for collaborative teamwork. *BMC Med Educ.* 2016; 16:83.
7. Strøm B, Pires Jorge J.A, Meystre N R, Kukkes T, Metsälä E, Hafslund BA. Interprofessional work in early detection of breast cancer: An integrative review. *Radiography (Lond).* 2019; 25:170-177.
8. Fatumo S, Shome S, Macintyre G. Workshops: a great way to enhance and supplement a degree. *PLoS Comput Biol.* 2014; 10(2):e1003497. doi: 10.1371/journal.pcbi.1003497.
9. Artioli G, Cosentino C, Foà C, Sarli L. Inter-Professionalism in Health Care Post-graduate specialization: an innovative Laboratory. *Acta Biomed.* 2019 28; 90:8-16.
10. Fleming R, Willgerodt MA. Interprofessional Collaborative Practice and School Nursing: A Model for Improved Health Outcomes. *OJIN.* 2017; 22: 3.
11. Diggele V, Roberts C, Burgess A, Mellis C. Interprofessional education: tips for design and implementation. *BMC Med Educ.* 2020; 20: 455.
12. Interprofessional Education Collaborative. (2016). Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC: Interprofessional Education Collaborative.
13. Onan A, Simsek N. Interprofessional education and social interaction: The use of automated external defibrillators in team-based basic life support. *Health Informatics J.* 2019; 25:139-48.
14. Talwalkar JS, Fahs DB, Kayingo G, Wong R, Jeon S, Honan L. Readiness for interprofessional learning among healthcare professional students. *Int J Med Educ.* 2016; 7:144-48.
15. Papanna K, Kulkarni V, Tanvi D, Lakshmi V, Kriti L, Unnikrishnan B, et al. Perceptions and preferences of medical students regarding teaching methods in a Medical College, Mangalore India. *Afr. Health Sci.* 2012; 13: 808-13.
16. Jiraporncharoen W, Angkurawaranon C, Chockjamsai M, Deesomchok A, Euathrongchit J. Learning styles and academic achievement among undergraduate medical students in Thailand. *J. educ. eval. health prof.* 2015; 12:1-7.
17. Burgess A, Diggele V, Roberts C, Mellis C. Facilitating small group learning in the health professions. *BMC Med Educ.* 2020; 20: 457.
18. Lama P, Kulkarni J, Tamang B, Sinha P. The impact and significance of small and large group teaching and learning in medical curriculum. *J Anat Soc India.* 2015; 2:2349-1604
19. Burgess A, Roberts C, Diggele V, Mellis C. Peer teacher training program: interprofessional and flipped learning. *BMC Med Educ.* 2017; 17:239.