

Assessment of Physical Activities of Breast Cancer Patients Attending Hiwa Hospital in Sulaymania City.

تقييم النشاطات البدنية لمرضى سرطان الثدي المراجعين الى مستشفى هيوفا في مدينة السليمانية

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الخلاصة

الهدف : تقييم النشاطات البدنية للنساء المصابات بسرطان الثدي وعلاقتها بخصائص المرضى الاجتماعية والديموغرافية والانجابية.

المنهجية: دراسة وصفية استرجاعية نفذت على ١٥٩ امرأة تتراوح اعمارهن ٢٠-٧٩ سنة، مصابات بسرطان الثدي من اللاتي كن مؤهلات للمشاركة في الدراسة و المراجعات لمستشفى هيوفا من ٣٠ نيسان ٢٠١٤ لغاية ٢ اب ٢٠١٥ . واختيرت العينة عرضية (غير احتمالية)، وقد تم استخدام استبيان النشاط البدني الدولي- النموذج القصير لتقييم النشاط البدني قبل ٦ أشهر من التشخيص. و تم حساب النشاط البدني، أي ما يعادل التمثيل الغذائي لل دقيقة خلال الأسبوع ، استخدمت الوسائل الإحصائية لتحليل البيانات عن طريق الإحصاء الوصفي والاستدلالي من خلال SPSS النسخة ٢٠.

النتائج: (٦١.٦٪) من المشاركات كانت غير نشطة، النشاط المهني (العمل) و تمثل (٨٢.٧٪) من إجمالي النشاط البدني، وانخفضت درجات النشاط البدني مع زيادة العمر ومؤشر كتلة الجسم . وزادت مع زيادة مستوى التعليم كما زادت في النساء غير المتزوجات و العاطلات عن العمل ، في حين لم يكن هناك اختلاف في درجات النشاط البدني بصدد نمط الحياة والعوامل الإنجابية .

الاستنتاج: أغلبية المشاركات في هذه الدراسة غير نشيطات بدنيا و لم تصل الى النشاط البدني المقترح التي تم توصيته للراشدين . ان الشابات، غير متزوجات ، متعلمات، العاطلات عن العمل، وذوي الوزن الطبيعي لديهم النشاط البدني عالي.

التوصيات: العمل على تشجيع وتنقيف اللاتي لديهن مخاطر عالية للإصابة بسرطان الثدي لأداء مستوى عال من النشاط البدني.

الكلمات المفتاحية: النشاط البدني ، سرطان الثدي ، مستشفى هيوفا

Abstract

Objective: To assess physical activity for breast cancer women and test it's relation with patients' socio-demographic characteristics, life style and reproductive factors.

Methods: a descriptive, retrospective study conducted on 159 women ages 20-79, with breast cancer, who were eligible for the study and attended Hiwa hospital from April 30th, 2014 to August, 2nd, 2015. A convenience (non-probability) was used. International physical activity questionnaire short form was used to assess physical activity prior 6 months of diagnosis. Physical activity score calculated as metabolic equivalent of task-minute per week (METs-min/week). Data was analyzed by descriptive and inferential statistics through SPSS version 20.

Results: (61.6%) of participant were inactive, occupational activity was the accounted for (82.7 %) of total physical activity, physical activity scores decreased with increasing age ,body mass index (BMI), and increased with increased level of education, in single and unemployed ($p < 0.05$), while there was no difference in physical activity scores regarding lifestyle and reproductive factors ($p > 0.05$).

Conclusion: Majority of participants were inactive, not meeting physical activity recommendation proposed for general adult population. Young, single, better educated, unemployed and normal weight they were more active physically.

Recommendation: Encourage and educate high risk group for breast cancer to be involve in high level of physical activity.

Keyword: physical activity, breast cancer, Hiwa Hospital.

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INTRODUCTION

Breast cancer is the most commonly diagnosed invasive malignancy and the second leading cause of cancer death in women globally, the global burden of breast cancer is highest in developed countries, accounting for 55% of cancers, but rapidly increasing rates in developing countries have given rise to concern⁽¹⁾.

Physical activity is defined as any bodily movement produced by skeletal muscles that require energy expenditure. Physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million deaths globally⁽²⁾. It is a complex, multidimensional behavior, the precise measurement of which is challenging in free-living individuals. Measurement of physical activity is difficult, few people have stable physical activity level, most people have physical activity that varies daily, seasonally, or during different periods of their life⁽³⁾. There are many direct and indirect ways to measure physical activity; however, each method has its strengths and weaknesses. There is no single accurate method enough to be called a “gold standard.” Women’s physical activity patterns are poorly understood⁽⁴⁾.

Well establish that being female, increasing age, personal and family history of breast cancer and breast diseases, radiation exposure, obesity, beginning menstrual period at a younger 12 years age, beginning menopause at an older age than 55 years, nulliparous, not breastfed, postmenopausal hormone therapy, oral contraceptive pills, drinking alcohol and smoking increase the risk of breast cancer⁽⁵⁾.

Primary prevention of breast cancer is a difficult since most of the not modifiable risk factors are impossible to influence⁽⁶⁾. However, physical activity is a modifiable lifestyle factor that has consistently been shown to reduce breast cancer risk. Physical activity protects not only against cancer, but it has also been associated with benefits during and after cancer treatment⁽⁷⁾. Evidence is growing that physical activity reduces breast cancer risk. To reduce risk of breast cancer, the American Cancer Society recommends that adults get at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity activity each week (or a combination of these), preferably spread throughout the week⁽⁸⁾.

The lifestyle can change the risk of developing breast cancer is supported by several lines of evidence according to a meta-analysis, the most physically active women had a significant 12% lower breast cancer risk compared with the least active women⁽⁹⁾. Nonetheless, research data show that 35% of the European adult population is physically inactive. Inadequate levels of physical activity are associated with increased risks of colon, endometrial, and breast cancers⁽¹⁰⁾.

OBJECTIVES

The study aims to:

- Assess the physical activity levels at 6 months prior to diagnosis of breast cancer.
- Identify association between physical activity and socio-demographic, lifestyle and reproductive factors.

METHODOLOGY

Quantitative descriptive (retrospective) study conducted on 159 women with breast cancer in Sulaimani city, Hiwa hospital (the only hospital that deal with oncology cases in Sulaimani city), between May, 30th 2014 and August, 2nd 2015. A convenience (non-probability) sampling was used. This study received ethics committee approval, and all study subjects provided oral informed consent before the interview. Patients were eligible for the study if they female had been diagnosed with breast cancer; were diagnosed at aged 18 years and older, duration of disease less than 2 years and willing to participate in the study. 180 women agreed to participating in the study, 21 of whom were excluded, (9 women have conditions that prevent to do normal physical activity, fracture, pregnancy and stroke at a time that is supposed the data to be collect, 6 months prior diagnosis) and 12 women did not complete questionnaire.

We collected data using an interview-administered questionnaire. Trained interviewers completed a questionnaire assessing patient's socio-demographic, reproductive, menstrual, and anthropometric factors; patient and family history of cancer; oral contraceptive use; menopausal status; medical history; smoking; and alcohol consumption. Research data analyzed through (SPSS-22), and by using descriptive statistics such as (frequency and percentage) to explore patients characteristics and physical activity, (mean and standard deviation) to determine physical activity scores. Inferential statistics such as (t-test and F-test), were used to determine association between patients' characteristics and physical activity, ($p \geq 0.05$) considered to be significant levels.

Assessment of physical activity

To obtain detailed information on physical activity, the researcher used a short version of the International Physical Activity Questionnaire (IPAQ-SV) to reach the objectives of the study. The IPAQ-SV was designed to identify the frequency and duration of walking, moderate and vigorous physical activity at work and during recreational time, and sitting time in the previous 6 months prior diagnosis of breast cancer. The English version of the IPAQ-SV has been observed to have acceptable validity and reliability^(11&12). Total physical activity was estimated by adding together the minutes per week of vigorous physical activity, moderate physical activity, and walking. Based on the physical activity recommendations of the American College of Sports Medicine and the American Heart Association, respondents were classified into three groups. Individuals who reported less than 10 minutes (<600 MET-min/weeks) of total physical activity were categorized as “inactive”. Those who reported engaging in total physical activity from 10 to 149 minutes/week (600 – 2999 MET-min/weeks) were denoted as “insufficiently active”, and those reporting 150 minutes/week (3000 MET-min/weeks) or more activities were coded as “sufficiently active”^(13 & 14).

RESULTS:

Table (1): The differences in (METs-Min/Week) participants socio-demographic characteristics

| Socio-demographic Characteristics | | | | METs-Min/Weeks | | | |
|-----------------------------------|-----------------------|------------|------------|----------------|--------------|--------|---------|
| | | Number | % | Mean | STD | F | p-value |
| Age Groups /Years | 20-29 | 12 | 7.5 | 1318.5 | 1189.2 | 2.51 | 0.032 |
| | 30-39 | 31 | 19.5 | 1041.9 | 903.9 | | |
| | 40-49 | 48 | 30.2 | 876.8 | 565 | | |
| | 50-59 | 49 | 30.8 | 807.6 | 573.5 | | |
| | 60-69 | 17 | 10.7 | 590.1 | 328.4 | | |
| | ≤ 70 | 2 | 1.3 | 119.7 | 14.1 | | |
| Ever Married | No | 17 | 10.7 | 1321.4 | 1031.8 | * 2.78 | 0.006 |
| | Yes | 142 | 89.3 | 828.1 | 640.4 | | |
| Educational Level | Low * | 108 | 67.9 | 668.2 | 466.3 | 27.77 | 0.0001 |
| | Medium ** | 42 | 26.4 | 1180.5 | 815.5 | | |
| | High | 9 | 5.7 | 2034 | 960.8 | | |
| Occupations | House Wife | 92 | 57.9 | 976.7 | 572.7 | 7.9 | 0.0001 |
| | Governmental Employee | 39 | 24.5 | 748.6 | 809.2 | | |
| | Self-Employee | 20 | 12.6 | 408.9 | 167.5 | | |
| | Unemployed | 6 | 3.8 | 1969.1 | 1407.2 | | |
| | Retired | 2 | 1.3 | 504 | 121.3 | | |
| Residency | Urban | 114 | 71.7 | 883.9 | 671.7 | 0.09 # | 0.93 |
| | Rural | 45 | 28.3 | 873 | 791.3 | | |
| Financial Status | Sufficient | 21 | 13.2 | 961.7 | 803.7 | 1.23 | 0.3 |
| | Medium | 99 | 62.3 | 923.6 | 752.6 | | |
| | Insufficient | 39 | 24.5 | 728.7 | 483.7 | | |
| Body Mass Index | Normal | 19 | 11.9 | 957.4 | 677.9 | 2.98 | 0.049 |
| | Overweight | 47 | 29.6 | 969.5 | 781.2 | | |
| | Obese | 93 | 58.5 | 674.3 | 495.7 | | |
| Total | | 159 | 100 | 880.8 | 705.1 | | |

MET: Metabolic Equivalent of Task, STD: standard deviation, F : F-test, *Illiterate and primary considered low educated ** secondary and preparatory considered medium educated and more considered high educated, # t-test

Table (1) presented that there were 159 women with breast cancer participated in present study. Characteristics of study participants in relation to their physical activity scores. The average age was 46.6 ± 1.1 years (range, 24-73). More than thirty percent were either (30-39) or (40-49) years old. Statistically significant decreases in physical activity were observed in different age groups, youngest age group (30-39) years old had higher physical activity (METs-Min/Week) scores (1318.5 ± 1189.2) and older age group (70 years and more) had lowest (119.7 ± 14.1). Majorities (89.3%) of participants were married, and had lower physical activity scores (828.1 ± 640.4) than unmarried (1321.4 ± 1031.8). The level of education was low for most of participants (67.9%), as their physical activity score (668.2 ± 466.3). Regarding occupation more than half (57.9%) of them were house-wife, women who were unemployed had higher physical activity scores (1996.1 ± 1407.2), self-employed and retired had lowest (408.9 ± 167.5) and (504 ± 121.3) respectively. Majorities (71.7%) were

from urban and (62.35%) had barely sufficient financial status, there were no significant difference in physical activities scores regarding residency or patient's financial status. As for body mass index more than half (58.5%) were obese, (29.6%) were over-weight, obese patients had lower physical activity scores (674.3 ± 495.7).

Table (2):The differences in (METs-Min/Week) participants medical, lifestyle and reproductive characteristics

| Medical, lifestyle, reproductive Characteristics | | | | | METs-Min/Weeks | | |
|--|--------|--------|--------|-------|----------------|------------|---------|
| | | Number | % | Mean | STD | T | p-value |
| Patients History of Breast Cancer | | | | | | | |
| No | | 147 | 92.5 | 885.2 | 713.8 | 0.27 | 0.79 |
| Yes | | 12 | 7.5 | 827.6 | 611.3 | | |
| Patients History of Benign Breast Diseases | | | | | | | |
| No | | 132 | 83.0 | 914.2 | 733.7 | 1.32 | 0.19 |
| Yes | | 27 | 17.0 | 717.6 | 524.3 | | |
| Patients History of Cancer | | | | | | | |
| No | | 138 | 86.8 | 892.5 | 729.3 | 0.54 | 0.59 |
| Yes | | 21 | 13.2 | 804 | 526.2 | | |
| Family History for Breast Cancer | | | | | | | |
| No | | 141 | 88.7 | 901.9 | 720.5 | 1.1 | 0.29 |
| Yes | | 18 | 11.3 | 715.9 | 559.5 | | |
| Family History for Cancer | | | | | | | |
| No | | 81 | 50.9 | 963.2 | 829.1 | 1.5 | 0.13 |
| Yes | | 76 | 49.1 | 795.3 | 539.8 | | |
| Smoker | | | | | | | |
| No | | 141 | 88.7 | 914.3 | 724.4 | 1..68 | 0.09 |
| Yes | | 18 | 11.3 | 618.9 | 465.9 | | |
| Postmenopausal | | | | | | | |
| No | | 58 | 36.5 | 1080 | 896.9 | 2.76 | 0.007 |
| Yes | | 101 | 63.5 | 766.5 | 539.2 | | |
| Ever Hormonal Replacement Therapy | | | | | | | |
| No | | 126 | 79.2 | 923.6 | 719.5 | 1.5 | 0.14 |
| Yes | | 33 | 20.8 | 717.5 | 630.5 | | |
| Age at first menstrual period | | | | | | | |
| ≤ 12 Years | | 15 | 9.4 | 839.4 | 653.9 | 0.26 | 0.79 |
| | | 714.93 | 888.3 | 90.6 | 144 | > 12 Years | |
| Nulliparous | | | | | | | |
| 0.19 | - 1.79 | 650.1 | 825.9 | 76.7 | 122 | No | |
| | | 846.9 | 1061.7 | 23.3 | 37 | Yes | |
| Ever Breast Fed | | | | | | | |
| 0.22 | 1.23 | 744.1 | 965.5 | 39.6 | 63 | No | |
| | | 676.4 | 825.2 | 60.4 | 96 | Yes | |
| Ever use contraceptive pills | | | | | | | |
| 0.43 | - 0.79 | 683.4 | 848.6 | 65.4 | 104 | No | |
| | | 747 | 941.8 | 34.6 | 55 | Yes | |
| | | 705.1 | 880.8 | 100 | 159 | Total | |

MET: Metabolic Equivalent of Task, STD: standard deviation, F : F-test, *t-test

Regarding participant's medical and life style factors majority of them had no history for breast cancer (92.5%); benign breast disease (83%); other type cancer (86.8%); and family history for cancer (88.7%), more than half (50.9%) had no family history for other type of cancer and (88.7%) were no smoker, all participants were no drink alcohol. No statistical significant difference were found between each of above mentioned factor and physical activity scores, as presented in table (2) and ($p\text{-value} > 0.05$). Present study examined

physical activity with some reproductive factors and found that (63.5%) of participants were post menopause and they had lower physical activity scores (766.5 ± 539.2) than premenopausal, the difference were significant statistically. Majority (79.2%) never used hormonal replacement therapy, (90.6%) had first menstrual period after age of 12 years, (23.3%) nulliparous, ever breast feed were (60.4%) and (65.4%) never used contraceptive pills. Physical activities scores were similar for women used hormonal replacement therapy and did not use, who had first menstrual cycle before age of 12 years or after, ever breast feed or not and used oral contraceptive pills or not.

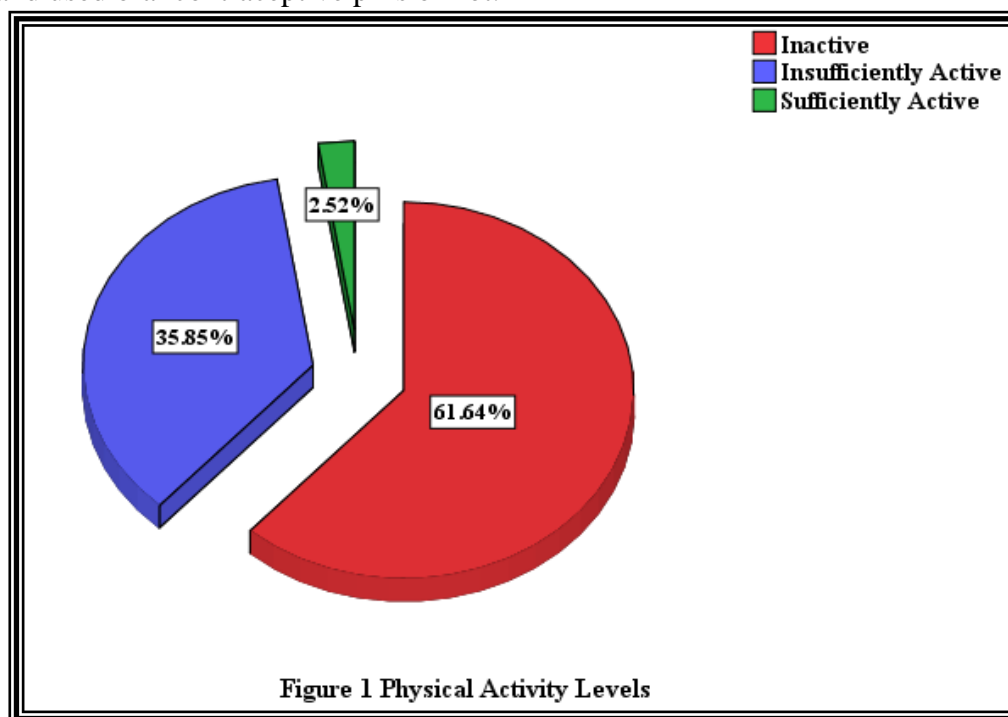


Fig (1) shows that the more than sixty one of women participated in present study were inactive, their physical activity scores were less than 600 METs-min/week, women who insufficiently active were (35.85%) while sufficiently active (which is a health enhance physical activity) were (2.52%) only.

Table (3): (METs) frequency, percentage, mean and standard deviation for selected domains of physical activity

| PA Domains \ METs | % | Mean | STD | Minimum | Maximum |
|-----------------------|------|-------|-------|---------|---------|
| Work | 82.7 | 728.2 | 634.8 | 80 | 2880 |
| Walking | 11.1 | 97.3 | 64.5 | 11.9 | 356 |
| Recreational activity | 6.2 | 55.3 | 87.1 | 0 | 704 |
| Total | 100 | 880.8 | 705.1 | 109.7 | 3940.4 |

PA: physical activity, STD: Standard deviation

Physical activity is a multidimensional exposure variable. For each domain of physical activity, table (2) describes the distribution of the mean for different domains of physical activity in MET-min/week. Occupational activity was the largest domain, accounting for (82.7 %) of total physical activity with mean of (728.2 ± 634.8) and active-recreational activity was the smallest, accounting for (6.2%) of total physical activity, with mean of (97.3 ± 55.3).

DISCUSSION

Because physical activity may be associated with different national habits, it may be informative to perform studies in different countries.

The current study assessed physical activities items in IPAQ short form and explored current definitions of physical activity levels behavior in women with breast cancer which includes HEPA active, minimally active and inactive. The finding revealed that about two third of participants were inactive, had sedentary lifestyle, almost one third were insufficiently active, which mean the activities were not enough to enhance their health, only few of them were sufficiently active, had a physical activities that enhance their health. Physical activity is a multidimensional exposure variable. Present study assessed different physical activities during work, walking, and recreational time. The highest contribution to total physical activity was from work which involved occupation and house holding, followed by walking and recreational activities were less relevant.

The percentage of the inactive women was found to be considerably higher than those reported by survey data that showed 35% of the European adult population is physically inactive. Nonetheless, HEPA active women (2.5 %) was found to be lower than those reported by Deborah et al. ⁽¹³⁾ stated that a very low percentage (9.7%) of adults achieve at least 150 minutes per week of physical activity which is enough to enhance health (HEPA active) according to WHO recommendation ⁽¹⁵⁾. Regarding physical activity dimensions similar finding reported by previous study, occupational activity was the largest domain, accounting for 76% and active-recreational activity was the smallest, accounting for less than 4% of total physical activity in Huaidong et al. ⁽¹⁶⁾ study.

A possible explanation for our findings may be this is due to low knowledge regarding benefit of physical activities in preventing diseases and promoting health, other rationale may be due to increase in mode of unhealthy transports like using the motor-vehicle, and cultural barrier to use non motor-vehicle such as bicycle or walking as a transport, and poor exercising habit.

In our study physical activity was significantly related to being old, married, low educated, retired, and BMI score. Higher levels of physical activity occur during work for being young, single, high educated, self-employed, and had normal BMI score ($BMI < 25 \text{ kg/m}^2$). Age and BMI were strongly inversely related to physical activity (METs-Min/Week) score, while residential area and financial status were not related to physical activity.

Significant associations between age and physical function were observed for many functions in Ross et al. ⁽¹⁷⁾ study, their results suggested that the physical activity levels must be taken into account in ageing. Nevertheless Deborah et al. ⁽¹³⁾ found different mean level of occupation-related physical activity, stated that the factory workers had the highest mean level of occupational activity (24.1 MET-Hr/days), followed by self-employed (21.7 MET-Hr/day). Furthermore, obesity was associated with lower levels of physical activity and physical function. Who were physically active were less likely to have high BMI scores compared to those who were sedentary ⁽¹⁸⁾.

According to previous studies, socioeconomic differentials in physical activity would be expected to grow significantly smaller in adult, as the physical changes associated with aging create barriers to physical activity across the entire socioeconomic gradient⁽¹⁹⁾. Thereby declines in activity that might occur over time within the same individuals. Beyond this, the current findings provide evidence of some noteworthy socioeconomic differences in the patterns of physical activity observed in different age and the education-based disparities in physical activity widened over time ⁽²⁰⁾. After examining physical activity in individuals with breast cancer, this study confirmed no association between physical activity scores and reproductive history. Only the effect of menopausal status on physical activity was statistically significant, it found the presence of an overall trend of declining physical activity in postmenopausal women.

We evaluated whether the effect of physical activity on breast cancer risk, a similar decreasing trend in physical activity score was observed for modifiable and non-modifiable risk factors. We observed significant confounding in our analysis, after controlling for most known breast cancer risk factors, physical activity score was similar in women who had history for breast cancer, other type of cancer and benign breast disease or hadn't. Furthermore similarity was observed in physical activity score among patients had family history for cancer and breast cancer, also smoker and nonsmoker had similar physical activity score. No significant differences in physical activity score were observed among women did use hormone replacement therapy and oral contraceptive pills or didn't, parous compared with nulliparous women, breast feed women with no breast feed, younger than 12 years when she has first menstrual cycle or older. These finding reflect that the physical inactivity may be a risk factors for breast cancer in our sample.

CONCLUSIONS

Depending in our results, we conclude that physical activity prior to breast cancer diagnosis is low, particularly in recreational physical activity. Most of the breast cancer patients were not meeting the PA recommendations proposed for the general adult population and support that young, single, better educated, unemployed and normal weight seems to have higher physical activity level. Reproductive factors had no effect on physical activity.

RECOMMENDATIONS:

1. High risk group for breast cancer should be encourage and educate to perform high level of physical activity.
2. Focus should be on recreational physical activity.
3. Physical activity can be used to plan and evaluate physical activity interventions as part of breast cancer prevention and health promotion efforts.

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