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Study exploring breast cancer screening practices amongst Arabic women living in the State of Qatar

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ABSTRACT

Breast cancer is a public health threat in the State of Qatar. It is the most common cancer and the incidence rate is increasing. It has been found that women often present with breast cancer at advanced stages in Qatar. Early detection of breast cancer is an important prognostic factor and breast cancer screening has been found successful in decreasing mortality rates. The percentage of women in Qatar engaging in screening activities is alarmingly low. A study has been designed to examine barriers and facilitators that are potentially influencing women in participating in breast cancer screening activities. Understanding these barriers and facilitators is essential in order to create a culturally appropriate and effective intervention that can encourage women in Qatar to participate in screening activities. In this paper the background to the study is presented which highlights the magnitude of the breast cancer problem in Qatar and offers the rationale and information for this potentially groundbreaking study.

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BACKGROUND

Breast cancer is a major global public health problem [1–3]. It is the most commonly diagnosed cancer and one of the leading causes of cancer deaths in women worldwide [3,4]. In Arabic countries breast cancer has become the most common cancer among women [1,5]. Not only has breast cancer incidence rates in Arabic women increased during the last 24 years in the Middle East region [6], but women are also being diagnosed with breast cancer at more advanced stages of the disease and clinically a higher proportion of women in their thirties and forties have been found to present with breast cancer [1,7–9]. The World Health Organization (WHO) states that this last phenomenon is caused by the population pyramid in this region with its relatively larger number of younger women than older women, and not because of higher incidence rates of breast cancer among younger age groups compared to developed countries [10].

Qatar has undergone many swift changes in the last few decades. It has experienced substantial development driven by oil and natural gas wealth [1]. Rapid growth leading to changing environmental and social conditions have affected the prevalence and patterns of cancer [1,8]. In 2007, 20% of all cancer cases receiving treatment in the Al Amal hospital, an oncology hospital in Doha, were breast cancer [11]. Bener, Ayub et al reviewed in 2007 data from Qatar's National Cancer Disease Registry for the year 2006 and discovered that breast cancer is the leading cancer diagnosis, far greater than other most common cancers for Qatari women [1]. WHO reported similar findings [12] stating that breast cancer is by far the most common cancer in Qatar and both its incidence rate and mortality rate are significantly higher than any other type of cancer in Qatar for women, as illustrated in Fig. 1.

Additionally, as can be seen from Fig. 2, even when compared to the most common cancers for men such as lung and prostate cancer, breast cancer incidence and mortality is still considerably higher than any other type of cancer in Qatar for both sexes.

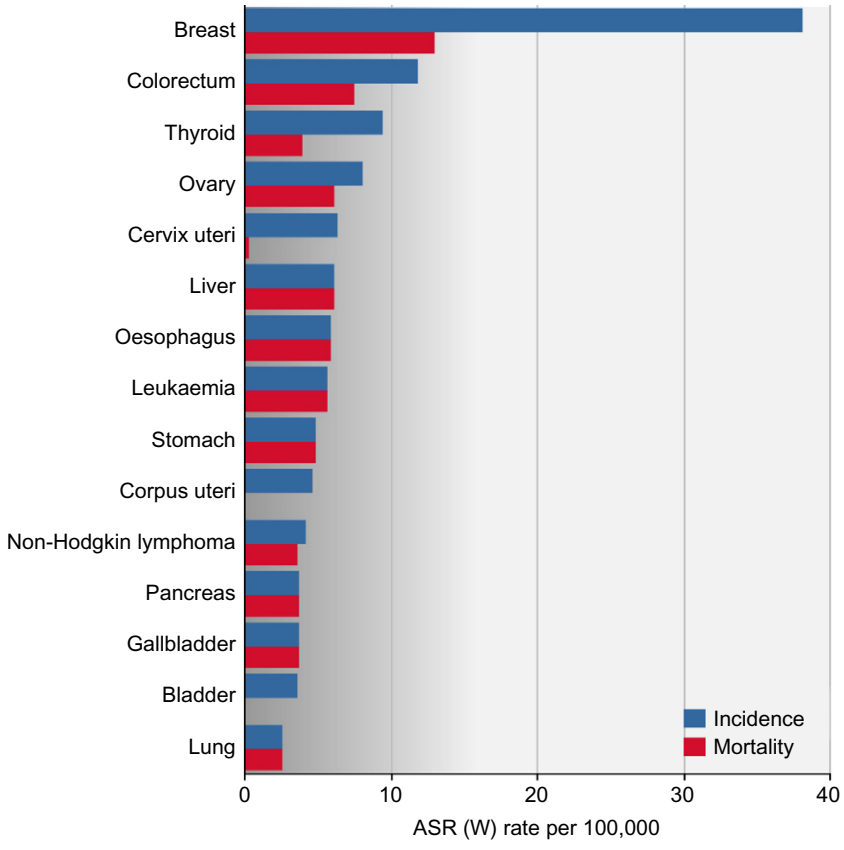


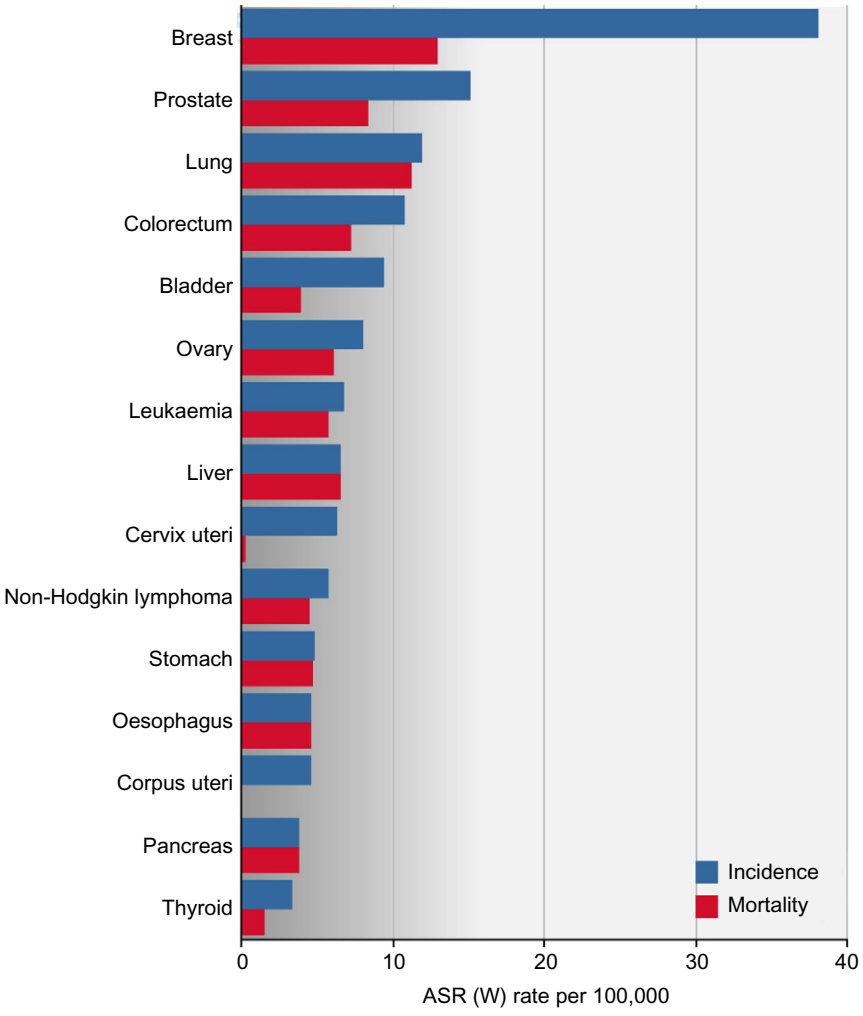
Figure. 1 Most frequent cancers in Qatar for women [12].

Cancer is often believed to be a disease of industrialized developed countries. However, the incidence and mortality rate of cancer is rapidly increasing in the developing world [3]. According to WHO [12], in 2002, 636,000 cases of breast cancer were reported in developed countries compared to 514,000 cases in developing countries with 75% of global breast cancer deaths occurring in developing countries.

BREAST CANCER INCIDENCE AND MORTALITY RATES

The incidence and mortality rates of breast cancer vary between countries. The highest age standardized incidence rates per 100,000 have been recorded in 2008 in Western Europe with Denmark 101/100,000 (highest), France 99.7/100,000, and UK with 89/100,000. Other industrialized regions also have a very high incidence rate such as Canada 83.2/100,000, US 76/100,000 and Australia 84.8/100,000. Certain regions in South America have also recorded very high rates for example Argentina with 74/100,000 [12].

In the Middle East the highest age-adjusted breast cancer incidence rate has been recorded in Kuwait with 47.7/100,000 and Jordan with 47/100,000. Qatar follows swiftly with its incidence rate of 38.1/100,000 which is high compared to countries such as Saudi Arabia (22.4/100,000) or Yemen (20.8/100,000) [12,13]. Even though the breast cancer incidence rate in developed countries increased in the last few decades, it has stabilized or increased only slightly in recent years [12,14]. In contrast, breast cancer incidence rate is increasing rapidly in the Middle Eastern countries and Qatar



ASR: age-standardized incidence rates per 100 000 per year.

Figure. 2 Most frequent cancers in Qatar for both sexes [12].

is no exception. Drawing from Qatar's National Cancer Disease Registry, Bener and his colleagues [1] reported a sharp increase of 57.1% in total cancer cases in Qatar in the period from 2002–2006 compared to 1991–1996. In the period 1991–1996 a total of 170 breast cancer cases amongst both Qatari and Non-Qatari women were recorded compared to a total of 360 cases in the period from 2002–2006 [1].

According to the WHO [12] in 2008 Qatar's breast cancer mortality rate was 12.9/100,000. This mortality rate is close to higher incidence countries in the Middle East such as Kuwait (15.3/100,000) and Bahrain (18/100,000). Qatar's breast cancer mortality rate of 12.9/100,000 is high compared to Saudi Arabia (10.4/100,000) and United Arab Emirates (10.9/100,000) which have lower incidence of breast cancer in the Middle East. Moreover, Qatar's mortality rate is proportionally high compared to those developed countries with much higher incidence rates, for example Canada (15.6/100,000), US (14.7/100,000), UK (18.6/100,000), Denmark (20.8/100,000), Australia (14.7/100,000), Argentina (20.1/100,000) or France (17.6/100,000) [12]. The comparison of the incidence versus mortality figures leads to the conclusion that the survival rate of breast cancer in high incidence countries is more favorable [3,5]. Due to improved treatment and early diagnosis [3,15] in the developed countries, mortality rates have been decreasing. It is predicted that these cancer mortality rates will decrease even more in up-coming years [3].

Etiological research into breast cancer has not found one distinct cause; rather it has been associated with multiple risk factors [3,7]. The increasing and relatively high incidence rate for breast cancer in Qatar might have been associated with multiple life style risk factors. Fatty diets, physical inactivity and obesity have been found to be risk factors worldwide [1,3,16]. Factors that might explain the increase of cancer incidence rate in Qatar are an adoption of western lifestyles [1], the improved status of the health care, higher levels of cancer awareness and screening, an increase in life expectancy, and improved control of communicable diseases [1,5].

The reproductive life of women has been associated with the following risk factors for breast cancer: high age at first birth, lower parity, early menarche, shorter duration of breastfeeding and late menopause [17]. Although the role of all these factors specifically for Arabic women is unknown, some interesting observations have been made. In Qatar and in the Gulf region, reproductive patterns and oral contraceptive use are changing [1,7,17]. Ravichandran & Al-Zahrani [17] state that in the Gulf region traditionally reproductive patterns are characterized by an early start to childbearing, short birth intervals and high parity. A considerable decline in fertility levels has been observed in the region as well as a steady rise in age of marriage and age at first birth over time. Although these patterns seem to be changing throughout the region, it has been observed that these changes occurred earlier in the high incidence countries in the region such as Bahrain, Kuwait and Qatar. Associated with the decline in fertility rates is the rapid increased usage of contraceptives among Arabic women [18]. The use of oral contraceptives has been associated with breast cancer [3] and this has also been found to be the case in the Gulf region [7,16]. The duration of breastfeeding has been found to work as a protective factor for breast cancer. However, Bener and his colleagues put forth in 2009 that short intervals between births for mothers in Qatar affect the duration of breastfeeding negatively, which in turn, reduces the protective effect of breastfeeding [19]. The percentage of Arabic women initiating breastfeeding has been found to be high however the amount of women exclusively breastfeeding at 6 months is low [20]. The duration of breastfeeding in Kuwait and Qatar was found to be consistently lower than in other Middle Eastern countries [17]. Qatar has a high rate of consanguinity (51%) and it has previously been implicated as acting as a risk factor for breast cancer in Qatar [19], although it has not been reported in other studies [16].

Further investigation into this matter is needed. Bener and his colleagues suggested in 2007 that individuals' lack of knowledge regarding early detection and screening might have contributed to the high incidence and mortality rates of breast cancer in Qatar [1].

BREAST CANCER SCREENING

Early detection of breast cancer through regular screening activities, improvement of the quality of the screening activities, and enhanced treatment has been found to decrease mortality rates by 25–30% [6,14]. The stage of diagnosis is an important prognostic factor and breast cancer detected at early stages will have a high chance of responding successfully to treatment [8,19]. As Arabic women are often diagnosed at advanced stages of cancer, [1,20] they are at significant risk for high mortality rate for breast cancer [6,7,22].

Early detection of breast cancer can be achieved through screening activities which include breast self examination (BSE), clinical breast examination (CBE) and mammography. These screening activities have the potential to both reduce morbidity and mortality [1,23]. The WHO reports mammography to be the most successful way of prevention amongst women older than 50 [3]. Screening and early detection by using mammography was found to be effective in reducing mortality rates in women aged 40–74 by 25% [14,21,24]. Although the benefit is higher for women aged 50 plus, partly because their risk is higher.

Previously in Qatar, monthly BSE and yearly CBE was recommended for women 35+, and mammography every two years for women 40–69, unless otherwise advised by physicians [25,26]. At present, Qatar's breast cancer screening clinic recommends monthly BSE starting at age 20, yearly CBE for women 35+, and annual mammography for women 40–69, unless otherwise advised by physicians. However, these recommendations are being revised to reflect Qatar's health care context and to meet the need of cancer care for women.

Data related to breast cancer research in The Middle East is scarce [5,6,27]. Although in other Middle Eastern studies, poor levels of knowledge regarding breast cancer and its screening have been found, [28,33] in the only reported study in Qatar, Bener et al (2009) [19] found in a large sample of 1200 Qatari women, aged between 30 and 55 years, adequate knowledge of breast cancer. It has to be noted that this level of knowledge was found to be significantly related to socioeconomic status. Despite this encouraging result of somewhat adequate knowledge level, Bener and his colleagues found in 2009 that participation rate in breast cancer screening activities remained very low with 24.9% of the studied women performed BSE, 23.3% had CBE and 22.5% had mammography [19,27]. Furthermore, the percentages of women reported taking part in these activities were mainly young Qatari women of higher socioeconomic status. Bener and his colleagues found in 2001 in a survey of 1367 women in the United Arab Emirates that 9.9% of women aged 50–69 reported having had mammography [27]. These screening rates are very low compared to women's breast cancer screening rates of other countries. In 2008, 72% of women aged 50–69 in Canada reported having had mammography in the past two years [29]. The WHO reports in 2008 that in Denmark, Finland, Sweden and in The Netherlands 85% or more women aged 50–69 had mammography in the previous three years [30]. In the UK more than 80% of women aged 50–69 are reported having had mammography in the previous three years, in Belgium and Austria participation rates fall around 70% [30]. Interestingly, participation in screening activities does not seem to be related to socio-economic status in countries such as The Netherlands, Belgium or Austria where women in the lowest income groups have been reported to be 'as likely to have had mammography as their wealthier counterparts' [30].

Even though it is challenging to compare figures between countries as each country's screening program is distinct, low breast cancer screening participation rate in Qatar should raise great concern.

BARRIERS AND ENABLERS INFLUENCE BREAST CANCER SCREENING

To create an effective intervention that will encourage women to participate in screening activities, examination of the barriers that are potentially restricting women from engaging in screening activities, is much needed. Similarly, enablers, that may influence their breast cancer screening behavior in a positive manner, need to be examined. Although data investigating these barriers and enablers in the Middle East, and specifically in Qatar, is scarce, the women's level of knowledge regarding breast cancer and its screening has been found to be related to screening behavior; lack of knowledge has been reported to act as a barrier for women to participate in screening activities [27]. Studies show that level of knowledge is related to socio-economic status [31]. Which in turn is related to mammography use [21,22]. Furthermore, physician's recommendations have been found to be an enabler and likewise not receiving a recommendation has been found to be a barrier [6]. Other factors that act as barriers are fear of cancer, fear of finding out one has cancer, the notion that there is no cure, perceived benefit, time, cost, fear of gossip, fear that breast examination and mammography could be painful, husband or other male family members objecting to breast examination, preference for a female health professional, the health system, accessibility of the health system, perceived effectiveness and embarrassment [6,22,23,28,32,33].

At times religion seems to work as an enabler in that it promotes internal locus of control when women believe that religion is urging them to take responsibility for their own health [28]. At other times religion has been found to work as a barrier when applied as an external locus of control.

Cancer screening behavior may be negatively influenced by cancer fatalism in some populations [27,32]. Fatalism could be described as beliefs whereby individuals accept their fate passively and believe that both health and death are beyond control. Fatalism can also include beliefs that God acts as an external force by being the cause of the cancer and determining the outcome of the disease or the belief that cancer is a test or punishment from God [32]. It is believed that fatalism might be an important barrier in lower socio-economic groups of the Arabic population [27,32].

The WHO's Ottawa Charter [34] indicated in 1986 that health promotion interventions should reflect both local needs and potential of individual countries. Individual health behavior has to be understood from its unique social and cultural context. Studies have shown that knowledge, attitudes, beliefs and practices around breast cancer screening practices are influenced by social and cultural frameworks [6,27]. It is vital to investigate knowledge, attitudes, beliefs, practices, barriers and enablers for each population before any intervention can be planned [28,32,35,36]. Thus, all these contextual factors influencing breast cancer screening practices specifically amongst Arabic women living in the State of Qatar, have to be investigated in order to design a culturally and socially appropriate intervention program to address this severe public health threat in Qatar. There is diversity between communities, populations or women in this instance, that have 'traditionally been grouped together as one entity' [35] which can be demonstrated in different health beliefs and behaviors.

THE STUDY

A study has been designed to tackle this public health threat. The three-phase research program has been initiated for which the goals are to (1) understand the breast health experience of Arabic women in Qatar, (2) identify and implement strategies that assist women to participate in breast cancer screening activities, and (3) evaluate, facilitate, and sustain the participation of Arabic women in breast cancer screening. In the 3-year phase I of the research program we will conduct two studies. Study 1 consists of a quantitative cross-sectional survey that will investigate the participation rate of Arabic women in breast cancer screening, their knowledge, attitude and beliefs about breast cancer, barriers and facilitators to participation. Using a structured questionnaire, we will conduct face-to-face interviews with Arabic women aged 35 and over in 7 sites in three different cities: Doha (capital of Qatar), Al Wakrah (south of Qatar), and Al Khor (north of Qatar), which represent urban and semi-urban communities in Qatar. Based on Cochran's formula for sample size, to ensure a more representative sample size for 43,272 women aged 35 and over living in these three cities we will conduct our survey with 753 women using the margin of error of 3.5%. Convenient sampling will be used to recruit 753 participants. Descriptive and inferential statistics will be performed using SPSS version 18. Study 2 consists of a qualitative study that will gain insight on: (1) how Arabic women view and participate in breast cancer screening activities, (2) how social, cultural, historical, and economic influences affect breast cancer screening for Arabic women, the access to screening services, and social support networks in place, and (3) what intervention strategies will increase awareness of early detection and participation in breast cancer screening among Arabic women. Purposive sampling will be used to recruit participants.

Previous studies show that not only do women experience barriers to accessing health care, but health care and service providers also experience challenges in providing care to them. These studies highlighted the important role of physicians [6,22,37–40] therefore, we plan to conduct individual in-depth interviews with health care providers to gain their perspectives about the challenges they face in providing breast cancer screening services to Arab women living in Qatar, and what they perceive to be the needs, concerns, and strengths of Arab women with whom they interact. Furthermore, associated with the recognition of breast cancer as an issue, and barriers to early detection by engaging in breast examinations, are cultural attitudes toward gender and sexuality among both women and men. In some cultures, discussion of breast and its examinations is considered taboo because it is associated with sexuality and breast cancer creates social stigma for women [37,38]. Bener and colleagues [27,33] found that in some conservative Arab areas, access to mammography clinics may be a barrier if women are not allowed to drive or travel alone without a male. Thus women are particularly vulnerable to the risk of discovering breast cancer at the late stages if they are not comfortable raising issues of breast lumps and breast examinations, especially, if their male relatives are not supportive of or object to such examinations. The above information emphasizes the importance of including men in health promotion messages about breast cancer

screening, so that they can encourage and support their wives' and female relatives' decision to go for mammography [5]. Thus, qualitative in-depth interviews will be individually conducted with 50 Arabic women, 50 men, and 30 healthcare providers and/or until data saturation has been obtained. Qualitative data analysis will be performed using NVivo version 8.

Gaining ethics approval from both Hamad Medical Corporation Research Committee and the University of Calgary Conjoint Health Research Ethics Board—Canada, data collection for phase 1 started in March 2011. The project is scheduled to be completed by November 2013. Subsequently, in phase 2 of the research program, data from both the quantitative and qualitative studies will be used to develop culturally appropriate and effective intervention strategies and services to meet the breast cancer care needs of Arabic women living in the State of Qatar with the aim of decreasing the seriousness and prevalence of breast cancer among them. Phase 3 aims to evaluate, facilitate, and sustain the participation of Arabic women in breast cancer screening in the State of Qatar.

The anticipated benefits of this project are potentially vast. It is hoped that this study will contribute to raising awareness of breast cancer and its screening in Qatar. Barriers and enablers with regards to breast cancer screening behavior will be discovered, specifically for Arabic women living in Qatar. These findings will enable the development of a culturally appropriate, socially acceptable, and effective intervention program. Ultimately this intervention program should decrease both morbidity and mortality from breast cancer in Qatar. Findings may be applicable to the Arabic population in the Middle East and benefit women of similar ethnic and cultural backgrounds worldwide.

In conclusion, breast cancer is a leading cause of cancer related death among women [12]. It is the most common cancer among women living in Arabic countries. Although Qatar's incidence rate of breast cancer is still relatively low compared to some Western countries, the incidence rate is rapidly increasing. Furthermore, Arabic women living in Qatar are often diagnosed at advanced stages of breast cancer and consequently the mortality rate in Qatar is proportionally high. Early detection and treatment of breast cancer can significantly reduce this disease morbidity and mortality. However, the participation rate in breast cancer screening activities of Arabic women in Qatar has been found to be alarmingly low. The low rate of screening suggests that Arabic women living in Qatar are at risk for lack of early detection and treatment of breast cancer in its early stages. At present, public information on cancer preventive care needs and research programs that aim to develop and implement intervention strategies specific to the State of Qatar's health care context are very limited. This study is aiming to examine contextual factors effecting Arabic women's breast cancer screening practices in order to develop, implement, and sustain an intervention program that will raise awareness of breast cancer and increase women's participation in breast cancer screening activities therefore reducing breast cancer's morbidity and mortality for Arabic women living in Qatar and in the Middle East.

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COMPETING INTERESTS

The authors declare they have no competing interests.

AUTHOR CONTRIBUTIONS

(i) DT: Contributed to the conception and design of the study and the acquisition, analysis and interpretation of the data, drafted the manuscript and gave final approval of the manuscript version submitted for publication.

(ii) AKA: Contributed to the conception and design of the study and the acquisition of the data, revised the manuscript and gave final approval of the manuscript version submitted for publication.

(iii) AKM: Contributed to the conception and design of the study and the acquisition of the data, review the manuscript critically for content and gave final approval of the manuscript version submitted for publication.

(iv) AMN: Contributed to the conception and design of the study and the acquisition of the data, revised the manuscript and gave final approval of the manuscript version submitted for publication.

(v) BAS: Contributed to the conception and design of the study and the acquisition of the data, revised the manuscript and gave final approval of the manuscript version submitted for publication.

(vi) MM: Contributed to the conception and design of the study and the acquisition of the data, review the manuscript critically for content and gave final approval of the manuscript version submitted for publication.

(vii) SR: Contributed to the conception and design of the study and the acquisition, analysis and interpretation of the data, revised the manuscript and gave final approval of the manuscript version submitted for publication.

(viii) CF: Contributed to the acquisition, analysis and interpretation of the data, drafted the manuscript and gave final approval of the manuscript version submitted for publication.

All authors read and approved the final manuscript.

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