



Management and outcomes of women with breast cancer in Hail Region, Northern Saudi Arabia

Hussain Gadelkarim Ahmed^{1,2,3✉}, Abdelbaset Mohamed Elsbali⁴, Abdullah Fahad Abdullah AL Gharbi¹, Jamal Ahmed Abdullah AL Marshadi¹, Muteb Nasser AL Awad¹, Muhannad Saud A. AL Shammari¹, Anas Abdulgader Fathuldeen¹

¹Collage of Medicine, University of Hail, Hai'l, Saudi Arabia

²Molecular Diagnostics and Personalized Therapeutics Unit, University of Ha'il, KSA

³Department of Histopathology and Cytology, CMLS, University of Khartoum, Sudan

⁴Department of Clinical Laboratory Sciences, College of Applied Medical sciences, Jouf University, Qurayyat, Saudi Arabia

✉Corresponding author

Collage of Medicine 2440, University of Hail, Hai'l,
Saudi Arabia

Email: hussaingad5@gmail.com

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General Note



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ABSTRACT

Background: Identification of breast cancer-related factors, such as cancer type and stage of diagnosis are important determinants of breast cancer overall management and outcomes. Therefore, the present study aimed to highlight the breast cancer management style and outcomes in Northern Saudi Arabia. **Methodology:** In the present study data regarding breast cancer were retrieved from the Department of surgery at King Khalid Hospital, Hai'l, Northern Saudi Arabia. Data referring to breast cancer patients who were diagnosed during the period from 2015 to 2018 were included. **Results:** More than 63% of the patients were diagnosed at stages $\geq$ III. Histopathology diagnosis confirmed ductal carcinoma in 82% of the patients, Lobular carcinoma in 15% of the patients, and mixed carcinomas in 3%. **Conclusion:** Breast cancer still detected at advanced stages, which strongly affects survival rates in some parts of Saudi Arabia. There is no clear management model in Hail Region, northern Saudi Arabia, which might negatively affect the level of Survival.

Keywords: Breast cancer, Saudi Arabia, management, outcomes, survival, chemotherapy.

1. INTRODUCTION

Worldwide, the commonest females' cancer is breast cancer. Planning of effective breast cancer control requires the presence of accurate data on the incidence and mortality of the disease (Ghoncheh et al., 2016). According to the GLOBOCAN statistics in 2018 worldwide, the second leading cause of cancer death after lung cancer was breast cancer (11.6%) of the total cancer deaths (Bray et al., 2018). Over time, the general burden of cancer in shifted to less developed countries worldwide (Torre et al., 2015).

Breast cancer is the most commonly diagnosed cancers in women living in the Gulf Cooperation Council countries (Albeshan et al., 2018). Epidemiology of breast cancer in the Arab region is less issued as compared with the Western world (Hashim et al., 2018). Some studies from Saudi Arabia have shown that breast cancer is leading females' cancer with a prevalence of 27.4% of all newly diagnosed female's cancers. Most cases occur at an earlier age than in western countries (Saggu et al., 2015). There is a high prevalence of breast cancer mortality among Saudi Arabian women, with the highest prevalence among divorced women (Alotaibi et al., 2018). Several modifiable risk factors have been linked to the etiology of breast cancer including; weight, alcohol consumption, physical activity level, breastfeeding, menopause hormone therapy, age at menarche, family history of breast cancer and prior benign breast disease (Tamimi et al., 2016). Addressing global breast cancer research is a challenging endeavor, as remarkable discrepancies and tremendously heterogeneous realism present in diverse areas across the world.

Definite challenges that influence the prospect of global breast cancer research comprise emergent the accessibility of trials in developing world, developing strategies to increase patient participation in clinical trials, and creation of clear guidelines for the development of real-world evidence-based research (Barrios et al., 2018). Thus the present study aimed to explore the management and outcomes of women with breast cancer in Northern Saudi Arabia.

2. MATERIALS AND METHODS

In the present study data regarding breast cancer were retrieved from the Department of surgery at King Khalid Hospital, Hai'l, Northern Saudi Arabia. Data referring to breast cancer patients who were diagnosed during the period from 2015 to 2018 were included. The full coverage sample in the mentioned duration was 70 patients. All patients were females and previously attended with breast lumps and subsequently were diagnosed with breast cancer. The initial diagnosis of all patients was performed using Fine Needle Aspiration Cytology (FNAC) or/and biopsy due to the existence of a breast lump. Subsequently, the diagnosis of breast cancer was confirmed by conventional histopathology.

FNAC was evaluated by implementing criteria designated by elsewhere (Ahmed et al., 2009; Ahmed 2011). Conventional histopathology was re-evaluated. The histological examination of biopsy specimens was completed to realize the valuation process role, by giving a pathology category classification (types of malignant and benign lesions).

Statistical analysis

Data analysis was done by using the Statistical Package for Social Sciences (SPSS version 16; SPSS Inc, Chicago, IL). SPSS was used for analysis and to do Fisher exact test for statistical significance ($P < 0.05$ was considered significant). The 95% confidence level and confidence intervals were employed.

Ethical consent

Our study protocol was confirmed according to the 2013 Declaration of Helsinki and this study was approved by the ethics committee of the College of Medicine, University of Hail, Saudi Arabia. Ethical Approval number: EC-00050/CM/UOH.01/19.

3. RESULTS

This study has reviewed records for 70 patients with breast cancer, aged 32 to 82 years old with a mean age of 53 years. The patients included only one male. Around 64(91.4%) of the patients were Saudi and the remaining 6(8.6%) were non-Saudi. The majority of patients were jobless 53(75.7%), 15(21.4%) were teachers and one (1.4%) was a nurse. About 64(91.4%) of the patients were married and the remaining 6(8.6%) were with single marital status, as shown in Fig 1.

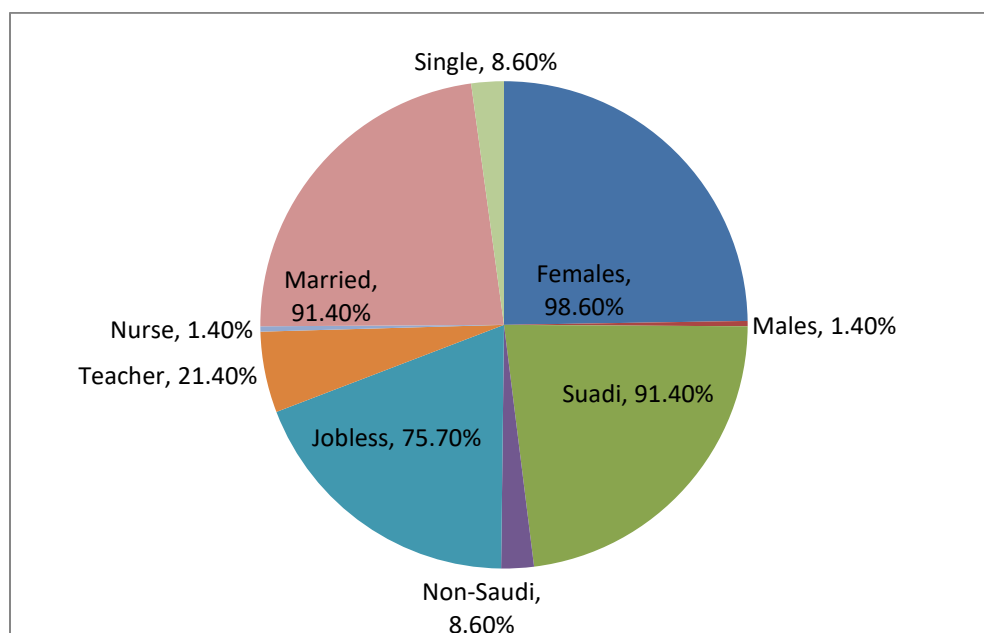


Figure 1 Description of the study population demographical characteristics

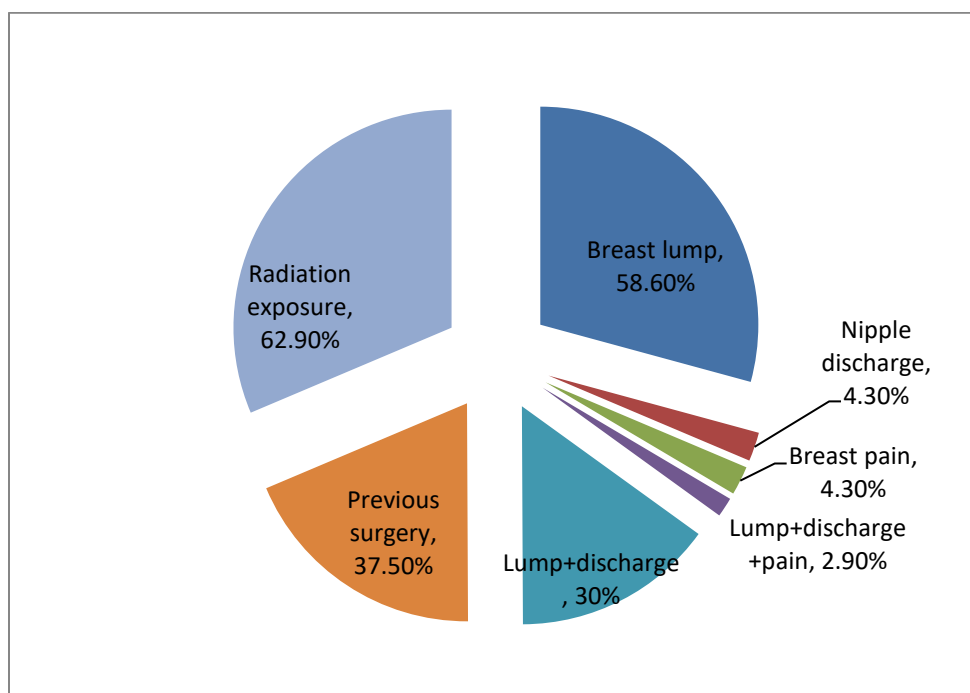


Figure 2 Description of the study population by initial clinical presentation

The initial clinical presentations of the patients included; 41(58.6%) breast lumps, 3(4.3%) nipple discharge, 3(4.3%) breast pain, 2(2.9%) lump+ discharge+ pain, and 21(30%) lump+ discharge, as shown in Fig 2. More than 63% of the patients have diagnosed at stages $\geq$ III. Histopathology diagnosis confirmed ductal carcinoma in 82% of the patients, Lobular carcinoma in 15% of the patients, and mixed carcinomas in 3%. Approximately 25(35.7%) and 44(62.9%) of the patients had experienced previous surgery and radiation exposure, respectively, as shown in Fig 2.

With regard to the management, Chemotherapy was done for 17(24.3%) of the patients, 12(17.1%) patients underwent Mastectomy, Chemotherapy + Mastectomy treatment was performed for 14(20%) patients, and Chemo/radiotherapy done for 2(2.9%). The remaining patients managed as; 17(24.3%) palliative care, 4(5.7%) DAMA, 6(8.6%) transferred and nothing was done for 3(4.3%) of the patients, as shown in Fig 3. With regard to the outcomes, 35(50%) of the patients have improved, 27(38.6%) died and the remaining 8(11.4%) were unknown, as shown in Fig 3.

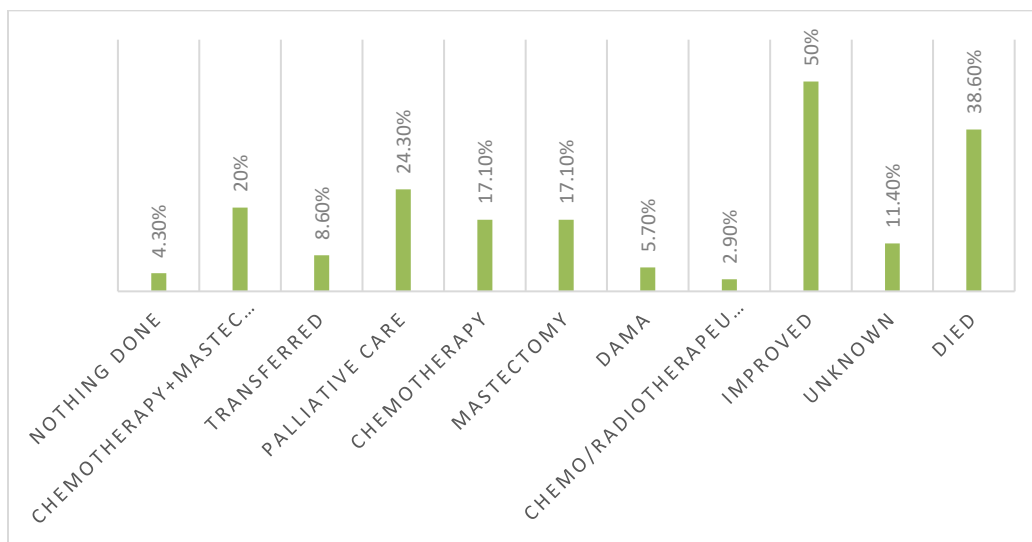


Figure 3 Description of the patients by management and outcomes

Table 1 and Fig 4 Summarized the distribution of the study subjects by initial clinical presentations, previous surgery and radiation exposure (X-rays). Most of the patients presented with breast lumps were at the age group 41-50 years followed by 51-60 years, constituting 13/41(31.7%) and 8/41(19.5%), respectively. Combined breast lump + nipple discharge presentations were commonly identified in at the age group 41-50 years followed by 51-60 years, constituting 9/41(22%) and 6/41(14.6%), correspondingly. An elevated number of patients who experienced previous surgery were found at age group 41-50 years constituting 9/25(36%). Exposure to radiation (X-rays) was predominantly experienced by patients at the age group 41-50 years followed by age ranges 51-60 and <40 years, representing 15/44(34%), 10/44(22.7%), and 8/44(18.2%), in this order.

Table 1 Distribution of the patients' age by initial clinical presentations, previous surgery, and radiation exposure

Variable	<40years	41-50	51-60	61-70	71+	Total
Initial clinical presentation						
Lump	7	13	8	6	7	41
Nipple discharge	0	1	0	1	1	3
Pain	0	0	1	0	2	3
Lump+discharge+pain	0	1	0	1	0	2
Lump+discharge	2	9	6	3	1	21
Total	9	24	15	11	11	70
Previous Surgery						
Yes	1	9	5	5	5	25
No	8	15	10	6	6	45
Radiation (X-rays) exposure						
Yes	6	15	10	8	5	44
No	3	9	5	3	6	26

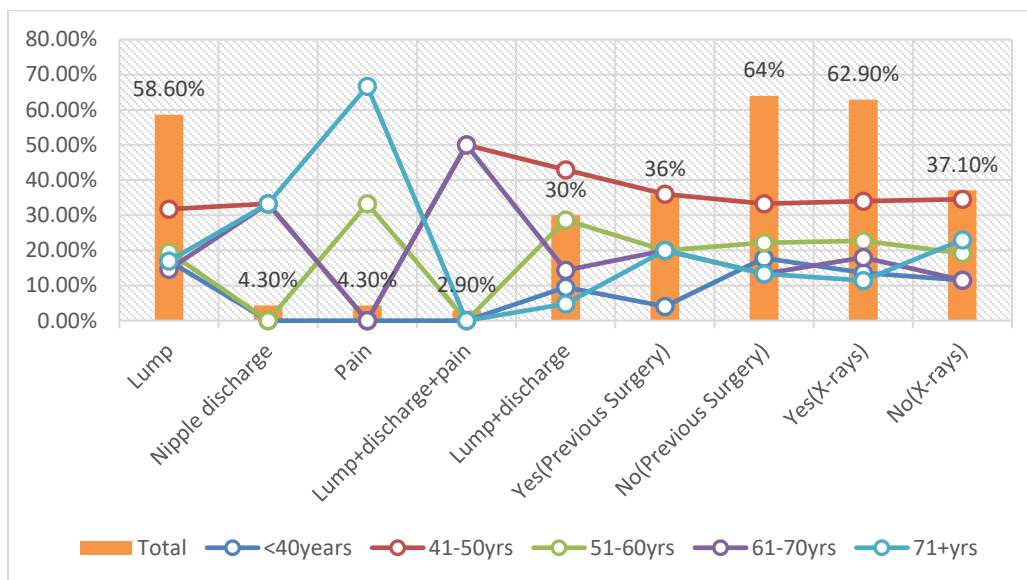


Figure 4 Patients' age by initial clinical presentations, previous surgery and radiation exposure.

In Table 2 and Fig 5, the distribution of the patients' age by management and outcomes was indicated. The patients were relatively similarly received chemotherapy with little elevations in age groups 41-50 (33.3%) and absence in age 71+ years. Mastectomy was predominantly done in the age group 51-60 years (33.3%) and absence in the age group 71+ years. Chemotherapy+mastectomy was more encountered among patients aged 51-60 years followed 41-50 years representing 6/14(42.9%) and 5/14(35.7%), respectively. DAMA was mostly received by age range of 41-50 years (75%). Most of the transferred patients were at the age range of 41-50 years (50%). Palliative care was mostly received by age range of 71+ years (53%). Most of the improved patients were aged 51-60 years followed by 41-50 years, representing 13/35(37%) and 11/35(31%), in this order. High death rates were observed at age groups 41-50 and 71+ years, representing 10/27(37%) in each group.

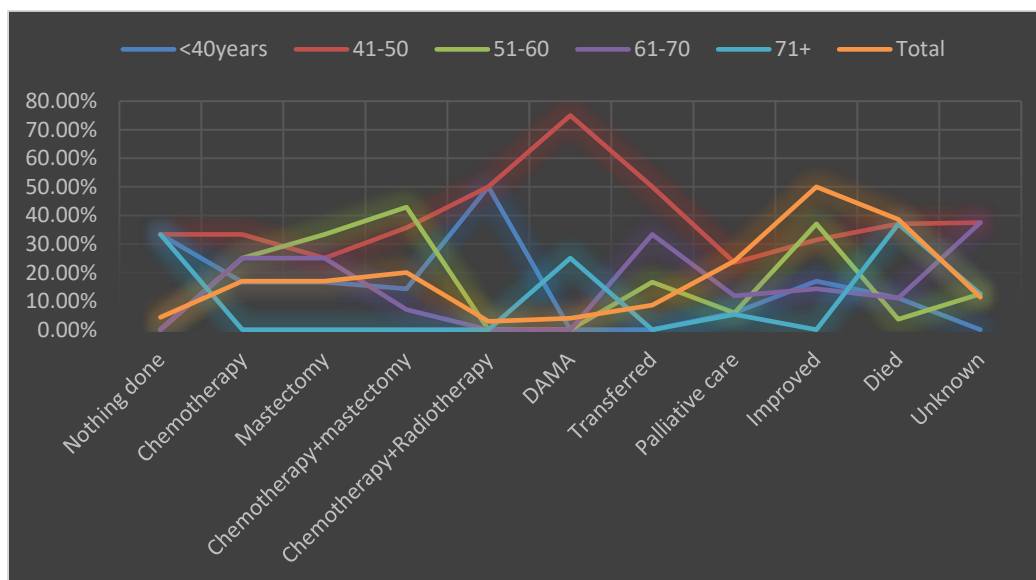


Figure 5 Patients' age by management and outcomes

Table 2 Distribution of the patients' age by management and outcomes

Variable	<40years	41-50	51-60	61-70	71+	Total
Management						
Nothing was done	1	1	0	0	1	3
Chemotherapy	2	4	3	3	0	12

Mastectomy	2	3	4	3	0	12
Chemotherapy+mastectomy	2	5	6	1	0	14
Chemotherapy+Radiotherapy	1	1	0	0	0	2
DAMA	0	3	0	0	1	4
Transferred	0	3	1	2	0	6
Palliative care	1	4	1	2	9	17
Total	9	24	15	11	11	70
Outcomes						
Improved	6	11	13	5	0	35
Died	3	10	1	3	10	27
Unknown	0	3	1	3	1	8

4. DISCUSSION

Breast cancer continues to frustrate women worldwide as the commonest female's cancer. Identification of cancer-related factors, such as initial presentations, breast cancer type, and breast cancer diagnosis stage are important determinants of breast cancer overall management and outcomes. Therefore, in the current study, we tried to highlight the breast cancer management style in Northern Saudi Arabia, as well as, the outcomes in relation to the initial stage of diagnosis. As described in the findings of this study, the initial presentation for most patients was breast lump (58.6%) and breast lumps & nipple discharge (30%). With a paucity of such data from Saudi Arabia, a study in this context has reported that breast lump was the most frequent (83%) followed by non-lump breast symptoms, (e.g. nipple abnormalities (7%) and breast pain (6%)). Greater proportions of women with 'non-lump only' and 'both lump and non-lump' symptoms waited for 90days or longer before seeking help compared to those with 'breast lump only' (15% and 20% vs. 7% respectively) (Koo et al., 2017). However, the presence of sustainable screening programs, such as mammograms and breast self-examination may early detect breast cancer and consequently reduce the overall burden of breast cancer. Late diagnosis of breast cancer can harmfully influence patient outcomes (Webber et al., 2017).

In this study, the great majority of patients diagnosed at advanced stages of the disease. More than 70% of the patients have diagnosed at stages $\geq$ III. This is the major tragedy in Saudi Arabia, due to the absence of sustained screening programs, decreased level of awareness, and social barriers. In Saudi Arabia, breast cancer is diagnosed at an advanced stage compared to Western countries. Nonetheless, the discern barriers to late presentation have been weakly addressed. Moreover, existing breast cancer awareness data are lacking a certified measurement tool. In a recent cross-sectional survey involved 290 Saudi women, 30 % predicted five or more (out of nine) non-lump symptoms of breast cancer, 31 % properly recognized the unsafe age of breast cancer (set as 50 or 70 years), 28 % described regular breast examination. Moreover, only 5 % were entirely aware of breast cancer, whereas 41 % were totally unaware. About 94% reported diverse barriers including, unappropriated doctor appointment (39%), worries of being diagnosed with breast cancer (31%) and several logistic and emotional barriers (Al-Khamis, 2018). The vast majority of breast cancer was ductal carcinoma (82%) in this series. Similar findings were previously reported from Saudi Arabia in a study involved 1005 breast tissues in which invasive ductal carcinoma accounted for 85.2% (Albasri et al., 2014).

In the present study around 35.7% and 62.9% of the patients had experienced previous surgery and radiation exposure, respectively. Previous surgery usually is done for treatment of diagnosis of benign breast lesions (BBL). BBL is a wide-ranging set of diagnoses reported to deliver a variable degree of augmented risk of developing breast cancer (Dyrstad et al., 2015). The radiation-induced breast cancer risk increases with longer follow-up, higher radiation dose and younger age of exposure. Although data regarding the carcinogenic risk of adjuvant radiotherapy for primary breast cancer are sparse, an increased risk is suggested with longer follow-up mainly when exposed at a younger age (Drooger et al., 2015). With regard to the management of patients, chemotherapy followed by mastectomy was performed in 20% of the patients. Neo adjuvant chemotherapy followed by surgery is nowadays used in a significant number of patients presenting with locally advanced breast cancer (Bernier 2015). Chemotherapy alone or mastectomy was done for 17.1% of the patients. Neo adjuvant chemotherapy (NAC) has traditionally been used in locally advanced and inflammatory breast cancer, allowing for a reduction in the disease volume (Al-Hilli and Boughey, 2016).

With regard to the outcomes, 38.6% of the patients died within these 3 years and this indicating a poor survival level, which might be attributed to the diagnosis at late stages of the diseases. Besides the diagnosis of breast cancer at an advanced stage, there are factors that can determine the survival level. Patients with triple-negative breast cancer (TNBC) have worse survival than patients with non-TNBC (Li et al., 2017). TNBC occurred at a younger age and exhibited aggressive pathology as compared to non-TNBC patients. The survival of Stage III TNBC patients was significantly worse compared to the non-TNBC group; while in stages I, II, and IV, survival were not significantly different (Agarwal et al., 2016). In a study from Saudi Arabia conducted in 2005, the 5-year

survival for duct carcinomas (62.8%) was greater than for adenocarcinomas (55.6%) and lobular carcinomas (50.0%) (Ravichandran et al., 2005). Another Saudi study has reported that five-year absolute survival by extent of disease was localized (70%), regional (56%), distant metastasis (57%) and unknown (62%) (Hamdan et al., 2011).

These findings necessitate the importance of establishing breast cancer prevention and control national strategies including implementing sustained screening programs, as well as, educational programs to raise the population awareness. Although the present study provided important evidence for further breast cancer actions and further research, it has some limitations including its retrospective setting and shortage of some information in patients' files.

5. CONCLUSION

Breast cancer still detected at advanced stages, which strongly affects survival rates in some parts of Saudi Arabia. There is no clear management model in Hail Region, northern Saudi Arabia, which might negatively affect the level of Survival.

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Conflicts of interest

Authors declare no conflict of interest

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