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Evaluating perceived threat of skin cancer and preventive measures in South Iranian sailors: A qualitative study

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Abstract:

BACKGROUND: Sailors are exposed to sunlight as their job requires and are, in the long run, more prone to different types of skin cancer. This study aimed to explore sailors' experience of perceived threat and to show protective behaviors against sunlight in the south of Iran.

MATERIALS AND METHODS: The present follows a qualitative approach and directed content analysis in 2018–2019 among sailors who were selected purposively through an interview procedure. Finally, 22 sailors and 3 patients with skin cancer with an experience of sailing were interviewed until data satiation occurred. The data were collected through a semi-structured interview based on two constructs, perceived susceptibility and perceived severity of protection motivation theory, and were instantly transcribed and read more than once by the present researcher. Simultaneously, the data were entered into MAXQDA 10 for the primary categorization.

RESULTS: Data analysis results were classified into 5 categories and 12 subcategories: protective attempts (change of work time and use of protectives), passivity in self-protection (not showing protective behaviors and not examining skin), inadequate perception of affliction risk (beliefs hindering preventive behaviors and low sensitivity), perceived threat to personal and familial conditions (loss of peace and loss of occupational-familial positions), and threat to health (incurable disease and perceived skin disease).

CONCLUSIONS: Awareness of these factors helps planners to choose the best preventive strategies with a focus on correcting beliefs and promoting protective behaviors as well as examining and screening sailors regularly to diagnose skin cancer. Moreover, to develop practical measures of protective strategies against sunlight among sailors, the required steps should be taken. This can help to reduce the rate of work-related risks while exposed to sunlight in this population.

Keywords:

Perceived threat, protection from sunlight, qualitative study, sailors, skin cancer

Introduction

Skin cancer is the most prevalent type of cancer in the world and accounts for at least 40% of all types of cancer.^[1,2] Nonmelanoma skin cancer (NMSC) is the most prevalent type of skin cancer at a global scale.^[3] Annually, 2–3 million cases of NMSC as well as 132,000 cases of MSC

occur worldwide.^[4] The present research findings showed that the rate of skin cancer has increased in Iran, especially among sailors, as they are constantly prone to ultraviolet (UV) of sunlight and thus a higher chance of skin cancer.^[5-7] The main cause of skin cancer is constant exposure to sunlight.^[8] Sailors, as their job requires, are exposed for long hours to sunlight

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and in the long run are more prone to the risk of skin cancer.^[9,10]

Some researchers on the perceptions and attitudes of workers on skin cancer like Grandahl *et al.* have reported that half of the outdoor workers do not think about the risk of occupational skin cancer.^[9] In a study in America, only 23% of farmers used sunscreen on a regular basis.^[11] Participants had good knowledge of the dangers of skin cancer in Australia. Most correctly perceived darker skin types as protective and believed they were at low risk of skin cancer.^[12] Caucasian participants aged 18 years or older in the UK were well informed about sun-safe messages. However, they did not seem to use effective protective practices.^[13]

There has been a dearth of research in perceptions, beliefs, and preventive behaviors of skin cancer among external workers in Iran. Thus, it is essential to develop educational programs to evaluate sailors' perceptions. Protective behaviors against sunlight are essential to prevent skin cancer. Such general protective measures include wearing sunscreen, long-sleeved clothes, and a hat as a primary preventive act for the public including external workers in different investigations.^[14-18] Besides using general protectives, it is suggested to use regular screening programs for body skin by a dermatologist for those above the age of 30 years, especially external workers.^[19]

Thus, in advance to the design and development of educational programs to promote protective behaviors, there is a need for analyzing sailors' perceptions, attitude, and protective behaviors against sunlight in this population. Theory-based need analysis and perception exploration are thus essential. Protection motivation theory (PMT) has been widely used to evaluate perceptions and behaviors in preventing cancer. In the present qualitative research, the two constructs, perceived susceptibility and severity, were used as a basis to discover sun-protective behaviors.^[20,21] Perceived susceptibility has to do with a threat to health and one's mental perception of susceptibility to health issues such as skin cancer. Perceived severity deals with one's perception of medical consequences such as pain, disability, mortality and social threats in personal or familial life, social communications, and one's perceived severity of disease. These determinants are taken as adaptive responses that can mediate, facilitate, or prevent a behavior.^[22,23] Therefore, This study aimed to explore perceived threat in order to prevent skin cancer among sailors in the south of Iran.

Materials and Methods

The present qualitative research adopted a directed content analysis in the light of the PMT. There were 22 participants including 19 sailors and 3 skin cancer

patients with an experience of sailing. The interviews were conducted between November 2018 and April 2019 in a purposive sampling to include a maximum variety of age groups in Bandar Bushehr in the south of Iran. This study used the PMT as well as perceived susceptibility and severity constructs to explore sailors' perceptions and experiences. The interviews were conducted face to face in a detailed semi-structured interview based on two constructs, perceived susceptibility and perceived severity of PMT. Inclusion criteria were to have at least one year of sailing experience, permanent residence in Bandar Bushehr, and full consent to take part in the research.

To extend the interview items, the related literature on skin cancer, PMT, and qualitative approaches was reviewed. Interview items were sent to health education specialists and qualitative researchers whose feedback was used for a final revision of the interview content.

Before the interviews, the purpose of research, reason for recording data, asking for participants' trust, and cooperation were explained, and they consented to take part in the research. During the interviews, it was attempted to make the least interference in the interview procedure. Deviations were prevented by asking proper questions. The interview guide as described below: Describes one of the workday's experiences. Considering the nature of your work, what is the probability of affliction with skin cancer? If afflicted, what problems and side effects might occur to you? Moreover, to elucidate the topic of interview such exploratory questions were asked as: What do you mean? Please elaborate more. Can you provide an example to better understanding the case? At the end of each interview, key points were highlighted and reiterated in the participants' responses, to confirm the accuracy of their saying, and in case of ambiguity, they were asked to clarify the concept.

At the end of each interview, key points raised in participants' responses were summarized and restated to check for accuracy. In the case of ambiguity, the respondent was asked to clarify the issue.

After the interviews were recorded, the content was transcribed and then the transcripts were provided to interviewees to confirm the content. It was reviewed several times by the researcher. The transcripts were entered into Microsoft Word and then for qualitative content analysis entered into MAXQDA 10. The related data were qualitatively analyzed following Lundman and Graneheim's method. To this aim, the recorded interviews were reviewed several times by the researcher and were transcribed precisely. Then, at the same time with the precise review of the interviews, the text was converted into meaning units which were later on turned into codes. Then, the codes were cross-compared in terms

of similarities and differences so that the categories and subcategories were identified.^[24] To make sure of the accuracy and stability of data, Guba and Lincoln's criteria were included: transferability, credibility, dependability, and conformability.^[25] In the present research, to increase the credibility of data analysis, the researcher did the coding, recoding, categorizing, and subcategorizing. Moreover, the researcher was long engaged in the research and managed to attract sailors' trust. To enhance dependability, participants' precise words and statements were cited in the quotation section. External checks were used to enhance conformability. To increase transferability, the interview texts, meaning units, and extracted codes were provided to some of the participants.

Ethical considerations

Before sampling, participants were explained about the study purpose. Furthermore, participants were asked to sign written informed consent forms to cooperate in the research. They were also ensured about the confidentiality of their information. Ethics code (IR.SSU.SPH.REC 1397.085) was also obtained from the Ethics Committee of Yazd University of Medical Sciences.

Results

The mean age of the participants was 38 ± 1.5 years. Table 1 indicates the participants' demographic information. Analysis of Iranian sailors' perceptions and experiences concerning perceived susceptibility and severity led to the extraction of 2 themes, 5 categories, 10 subcategories, and 192 primary codes. The codes extracted from perceived susceptibility included protective measures, passivity in self-protection, and inadequate perception of the risk of affliction. Those extracted from perceived severity include perceived threat to personal and familial conditions and threat to health. The coding, categorizing, subcategorizing, and theme extraction procedure is summarized in Table 2.

Change of work time

As reported by a number of participants, reduced activity while exposed to sunlight especially at the time when the sun shines maximally can prevent the occurrence of skin cancer. "On hot days especially summer, I try to go to the sea at night to avoid exposure to sunlight" (14th participant).

"I myself try more to take enough care. We go to the sea more in the evenings especially in hot season and we go back until 12-1 a.m." (16th participant).

Use of protective

The majority of participants in the present study believed that the use of protectives against sunlight including the use of hats/caps and proper clothes can help to prevent

Table 1: Sailor participants' demographic information

Variables	Level	Frequency (%)
Age (years)	20-30	7 (39)
	31-40	9 (41)
	41-50	6 (27)
Education	Below diploma	14 (63)
	Diploma	6 (27)
	academic	2 (9)
Marital status	Married	17 (17)
	Single	2 (9)
	divorced	2 (9)
Work experience	Below 5 years	6 (27)
	5-10 years	9 (41)
	10 years or more	7 (39)
Insurance	Yes	15 (68)
	No	7 (39)
Experience of sunburn	Yes	8 (36)
	No	14 (63)

skin cancer and reduce wrinkles. "Since I began to work, I have always worn long sleeves to at least protect my arms. Most of the times, I cover my head and neck, too" (third participant).

"I usually wear a hat and take care of my skin. It protects my skin from wrinkles" (11th participant).

Not showing protective behaviors

A few participants believed that self-protection against sunlight cannot impede skin cancer. Yet, they believed that covering their head, neck, and hands can reduce prickling and sunburn. "I never wear sunscreen. The type of work we do does not let us do such things or even think about them. I don't believe such things can stop cancer" (18th participant).

"To tell the truth, I have never used any. Of course, during the day, I wear short sleeves at the sea. At night I feel prickling and tingling" (17th participant).

Lack of skin examination

With this respect, a number of participants maintained that they had not had their skin examined for color or moles by a dermatologist to screen for skin cancer.

"It never occurred to me to ask my doctor check my skin for cancer" (18th participant).

Another participant has it: "Actually, I never visited a doctor for a skin check and never had my skin examined by the doctor in the healthcare center" (fourth participant).

Beliefs impeding preventive behaviors

It was reported by some participants that why they did not show protective behaviors was that they perceived skin cancer as a divine trial or simply as their

Table 2: Coding, categorizing, subcategorizing, and theme extraction procedure

Code	Subcategory	Category	Theme
Active at night	Change of work time	Protective attempts	Perceived sensitivity
Less active while in the sunlight			
Active in the evening			
Wearing a hat while working	Using protective		
Wearing sunscreen			
Wearing long sleeves			
Wearing a hat to protect skin from wrinkles			
Wearing a hat to prevent preterm old age			
Not wearing a hat	Not showing protective behaviors	Passivity in self-protection	
Not wearing proper clothes			
Not wearing sunscreen			
Not visiting a skin specialist	Not examining skin		
Lack of self-examination of the skin			
Lack of examination by dermatologist in the health center			
Not wearing sunscreen and perceiving cancer as fateful	Beliefs impeding preventive behaviors	Inadequate awareness of affliction risk	
Not wearing proper clothes and perceiving cancer as punishment			
Not showing protective behaviors and perceiving cancer as genetic			
Not showing protective behaviors and not pondering upon skin cancer			
Not showing protective behaviors and perceiving disease as originating from God			
Not wearing a hat and perceiving cancer as a divine trial			
Not showing protective behaviors and not perceiving self as susceptible	Low sensitivity		
Not showing protective behaviors and not perceiving skin cancer prevalent among sailors			
Not perceiving oneself susceptible to skin cancer due to work conditions			
Depression	Loss of peace	Perceived threat to personal and familial conditions	Perceived severity
Disappointment and aloofness			
Feeling incapable and weak			
Loss of peace			
Fear of cancer			
Worries and grief			
Individual's disappearing role in family	Loss of professional and familial position		
Concern for family			
Reason for unemployment			
Feeling humiliated in family			
Perceiving cancer as severe and incurable	Perceiving the disease as incurable	Threat to health	
Perceiving cancer equal to death			
Perceiving cancer as fatal			
Dried skin	Feeling to have skin problems		
Skin blisters			
Wounded and itchy skin			
Dehydration			
Sunburn			

fate. "I do not think this would bring about cancer unless it is in my fate" (second participant). "I believe taking care cannot prevent cancer. Disease comes from God. We should die one day anyway" (fourth participant).

A few participants justified their avoidance of protective behaviors as skin cancer is genetic. Concerning this, a participant stated: "I don't think I might get down with skin cancer as this disease has not occurred to me

or my family. It occurs only to those who have it in their family" (12th participant).

Low sensitivity

Hence, half of the participants perceived themselves as insusceptible to the disease in their current job because they refrained from protective behaviors.

Accordingly, a participant said: *"I don't think skin cancer is a threat to me and my colleagues. This disease does not exist among us"* (fourth participant).

Loss of peace

About half of the participants maintained that skin cancer can cause disappointment, aloofness, and lethargy. With this concern, a sailor said: *"Cancer is a hard disease which can devastate you, frustrate you and leave you restless"* (fourth participant).

One of the participants described skin cancer as fearsome, stressful, and discomfoting. *"Cancer is truly horrifying as it leaves you grievous and confused"* (13th participant).

Loss of professional and familial position

As the other points mentioned by the participants was the humiliated and embarrassed feeling among family due to loss of job and unemployment.

. Accordingly, one of the participants said: *"You see what cancer does to you when the breadwinner ends jobless feeling ashamed in family"* (12th participant).

Incurable disease

With this respect, half of the participants mentioned such issues as the high cost of the disease, uselessness of measures, and fatality of the disease.

"Skin cancer is truly threatening. You must pay all you have to doctors which end in nothing good. You never get over it" (12th participant).

"Cancer is threatening, no one afflicted can recover. It all ends in death" (fourth participant).

Feeling skin problems

Participants were asked about the consequences of skin cancer. In their responses, they mentioned skin wounds and blisters as well as dried skin. One participant stated: *"When out there in sunlight for long, your skin is dried out. It happened to me and I ended up with blisters"* (eighth participant).

A few participants perceived recurrent exposure to sunlight as the main cause of sunburn: *"Sunlight is strong here and leaves us sometimes sunburned"* (sixth participant).

Discussion

This is the first qualitative research that looks into sailors' perceived threat of skin cancer and protective measures in the south of Iran. Sailors are among external workers susceptible to skin cancer. This study used the PMT and the two constructs, perceived susceptibility and severity to explore sailors' experiences and perceptions. The

categories extracted from the perceived susceptibility theme include protective attempts, passivity to self-protection, and inadequate perception of affliction risk. The categories of perceived severity were perceived threat to personal and familial conditions and threat to health.

In the present research, protective attempts included change of work time and use of protectives such as a hat, long sleeves, and sunscreen. A body of research on populations in the U.S., Malaysia, Australia, and England found the use of sunscreen as the most prevalent protective measure. Wearing long sleeves and use of protectives in strong sunlight in the pick time of sunshine (11 a.m.–3 p.m.) have been reported in a limited body of research.^[12,13,26,27] Research findings on external workers including farmers in Germany are consistent with the present findings with the use of sunscreen, avoidance of sunshine at noon, and wearing long sleeves.^[28] German roofers began to work early in the morning in summer so as to protect themselves from sunlight. Wearing sunscreen and raising workers' awareness of protective measures against sunlight were taken as a consciousness-raising factor.^[29] The use of protectives such as long shirt and trousers showed to be more prevalent among American farmers than others.^[11] In their research, Zink *et al.* found that among external workers, the use of long trousers and scarf was the most prevalent way of protection.^[30] In some other research among elite aquatic athletes, the majority were found to wear long sleeves.^[31]

Passivity to self-protection which involves avoidance of protective behaviors or self-examination of the skin was extracted from sailors' perceptions and experiences. Protective attempts by American farmers and German roofers and gardeners were also kept to minimum. This is also in agreement with the present research findings.^[11,30] Research findings among roofers, gardeners, farmers, and elite aquatic athletes confirmed the present findings as the majority of participants reported not to have done skin screening.^[11,30,31] Search for a shading shelter from sunlight and avoidance of sunshine are among restrictions sailors are faced with in hot summer. Raising sailors' awareness of self-protection needs to be included in educational programs. Planning skin self-examination and examination by a dermatologist on a regular basis needs to be considered in health programs for sailors.

Inadequate awareness of the affliction risk of skin cancer which included one's beliefs impeding preventive behaviors and low susceptibility to skin cancer were among other findings of the present research obtained from qualitative interviews with sailors. This finding was confirmed by some other research by Khodayarian *et al.* who found fate as

the main factor involved for avoiding protective behaviors, as well as some other research by Bryant and Rodriques who found family background and genetic factors accounting for avoidance of protective behaviors.^[13,32,33] Contrary to the present findings, German roofers perceived a higher risk of affliction with skin cancer in long-term exposure to UV of the sun. More experienced roofers reported more protective behaviors.^[29] Correcting sailors' beliefs and correcting the core of their health control and shift it toward more protective behaviors need to be considered as a key factor in educational interventions.

Among the subcategories of perceived severity, perceived threat to personal and familial conditions showed to be the most significant. Some research among American adults revealed that when diagnosed with melanoma, people shocked, scared, and stressed. Issues concerning family communications, disappointment, and others' lacking perception of the seriousness of skin cancer were among other factors that were reported.^[34] A unique code in this research concerning the loss of occupational and familial position was associated with the loss of one's role in family, feeling humiliated in family, and unemployment, as derived from the interview. Thus, these codes show sailors' feeling of belonging, interdependence, and responsibility toward family and family management.

Another finding related to perceived severity theme was threat to health which involved disease incurability and feeling skin problems. In a body of research in public population, skin cancer was described as horrible, incurable, and fatal.^[13,34] American farmers confirmed this finding and reported that skin cancer can be fatal.^[11] American adolescents mentioned the avoidance of side effects of exposure to UV such as physical damage, damage to skin, and sunburn as the main reason why to adopt protective behaviors.^[26] The research findings reported by Rodriquez contradict the present findings and reported exposure to sunlight in order to receive Vitamin D and cure certain diseases including depression.^[33] It seems that to reduce exposure to sunlight and increase protective behaviors, we need to emphasize the short-term consequences of exposure to sunlight such as dried skin, blisters, wounds, and sunburns in educational programs.

Sailors, as exterior (outdoor) workers, compared to other populations have generally lower literacy level and general information.

Strengths and limitations

This qualitative study is the first qualitative study conducted to explore the perceptions and experiences of Iranian sailors. More than half of the participants

agreed that the use of protecting equipment in the prevention of skin cancer is effective. The survey was conducted among sailors in Southern Iran. Thus, this study was not applicable to all sailors and the general population. One limitation of the present study was that it only investigated sailors' perceptions and experiences. Thus, to gain a more comprehensive view of the topic at hand, it is suggested that further prospective research will take into account experiences and perceptions of dermatologists and residents of the south of Iran. Most of the participants had a high perceived threat of skin cancer because of working conditions. This attitude cans reassignment to the other outdoor workers. This topic for developing preventive strategies to promote preventive behaviors of skin cancer could be beneficial.

Conclusions

Sailors comprise a unique population whose nature of job makes them more susceptible to skin cancer. In the present research, sailors' perceptions and experiences of perceived threat were explored to prevent skin cancer. Lack of protective behaviors, lack of examination by health staff, and certain beliefs that impede preventive measures were found to be among issues that need certain attention. Thus, preventive strategies need to address the correction and promotion of preventive behaviors for primary prevention. Regular and periodic examination for this population should be integrated and implemented into health programs for this population. Moreover, to develop practical measures of protective strategies against sunlight among sailors, the required steps should be taken. This can help to reduce the rate of work-related risks while exposed to sunlight in this population. Then, the rate of skin cancer could be reduced among sailors.

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Conflicts of interest

There are no conflicts of interest.

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