

A Qualitative Study of Perceived Cost of Response in Skin Cancer Prevention Behaviours: The Case of Iranian Sailors' Perceptions

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Abstract

Background: Consistent exposure to the ultra-violet ray of the sun is a key factor involved in skin cancer afflicting external workers including sailors. Sailors' low level of awareness and lack of protective behaviors caused by inadequate knowledge is a key concern. The present research aimed to explore sailors' perceptions and experiences of the cost of response in showing protective behaviors of skin cancer in the south of Iran. **Materials and methods:** The present research used semi-structured interviews which were conducted between January and April 2019. A total number of 22 subjects (19 sailors, 3 skin cancer patients with sailing experience) participated in this research. All interviews were audio-recorded and later on transcribed carefully. Guided qualitative content analysis was conducted and then analyzed in the light of the Protection Motivation Theory (PMT). **Results:** Based on the cost of response construct of PMT, 3 primary categories were extracted each having its own sub-categories: 1. Cognitive limitations with 2 sub-categories of low awareness and knowledge and false conceptions, 2. Psycho-sociological limitations with 3 sub-categories of lacking motivation and encouragement, belief in fate and peer humiliation, 3. Financial sources with 3 sub-categories of living problems, accommodation and high cost of goods. **Conclusion:** Sailors' low knowledge and awareness along with their belief in insusceptibility to skin cancer were among barriers to adopting protective behaviors against skin cancer. Appropriate communication of healthcare staff with sailors as well as the development and constant implementation of educational programs are recommended.

Keywords: Skin cancer prevention behaviors; Sailors; Perceptions; PMT; Qualitative study

Introduction

Skin cancer is an increase in uncontrolled growth of skin cells marked by the emergence of malignant cells in layers of skin.

[¹] Skin cancer is the second most prevalent factor in mortality rate of developed countries and the third factor in mortality rate of developing countries. [²] Moreover, about one-third of the ten million new cases of cancer annually are preventable and one-third of the cases can be cured considering the possibility of early and appropriate diagnosis. [³] A body of related literature shows that skin cancers alone account for 32.7% of all cancers. [⁴] Yet, as skin cancer, overall, comprises a low percentage of cancer-induced mortalities, it is somehow underestimated. [⁵]

The growing trend of skin cancer has become a major public healthcare issue in many countries. [^{6,7}] Similarly, in Iran, skin cancer is considered a public health issue and has always been

the most prevalent type of cancer with the rate of 16.51%. [⁸] Similar to other malignancies, this cancer is multifactorial and constant exposure to the sun and over-absorption of UV ray is the main environmental risk factor of this malignancy. [⁹]

Early prognosis of cancer often underlines reduced risk of affliction and reduced risk factors in healthy population. A body of related research has shown that using theories are essential to

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explain preventive behaviors of high-risk behaviors.^[10] Using PMT to explain skin cancer prognostic behavior perceptions and experiences can facilitate a true perception of experiences in the target population. PMT involves 2 cognitive mediators including: 1. Threat appraisal, 2. Coping appraisal. According to this theory, threat appraisal would assess unadaptive behaviors and includes rewards of incorrect behaviors and perceived threat (severity and susceptibility). Rewards of incorrect behaviors would increase the possibility of choosing unadaptive behaviors while threats would reduce the possibility of choosing unadaptive reactions.^[11] Coping appraisal would assess one's ability to resist and repel threat. Increased coping appraisal would lead to increased protection motivation and thus a higher probability of behavior. Coping appraisal factors include response efficacy, perceived self-efficacy and perceived cost of response.^[12,13] Threat appraisal factors and coping appraisal factors were combined to form protection motivation intervening factors. In this model, it is assumed that accepting the recommended healthy behavior is a direct self-motivated measure one takes to protect oneself.^[14] Costs of response are the collection of barriers to the adoption of recommended preventive behaviors and include financial and non-financial costs such as time, efforts, discomfort and so on. Higher costs of adopting recommended healthy behaviors would cut down on the rate of the behaviors.^[15]

According to the related literature, the underlying reason for the increasing rate of this disease is more daily activities outdoors without proper protective clothes, higher rate of sea journey, long term exposure to sunlight and the ever thinning of the ozone layer.^[16] In the south of Iran, due to severe sunlight in most seasons, workers' extensive exposure to sunlight in open areas and not having proper protective clothes on (e.g. hood and caps) in the workplace outdoors, a high prevalence of skin cancer is well expected. Among those who are primarily at risk are sailors. This population spends long hours exposed to sunlight due to the nature of job involved. If they do not wear proper clothes to protect them from harmful rays, they are susceptible to skin cancer.^[15] The city of Bushehr is almost always tremendously sunny and sailors working in this harbor are extensively exposed to severe sunlight which makes them more prone to skin cancer. Moreover, skin cancer, regardless of gender, is a prevalent type of cancer in Bushehr province.

Broadly speaking, despite sailors' awareness of the effectiveness of skin cancer preventive behaviors, recurrent recommendations to those at risk and possibility of such behaviors for all, such preventive behaviors are still lacking to pursue health. Thus, it seems that there are a multiple factors involved in adopting preventive behaviors. Yet, they are primarily unknown. In order to access the overt and covert aspects of skin cancer preventive behaviors and come to a clear understanding from experiences, it is essential to qualitatively explore the experiences of those at risk and develop a proper educational program based on their needs. Therefore, the present research aimed to explore sailors' perceptions and experiences of the cost of response in skin cancer protective behaviors in the south of Iran based on PMT.

Research Methodology

The present qualitative research followed guided content analysis approach and used semi-structured interviews which were conducted between January and April 2019. In this research, PMT and the perceived cost of response construct were used to explore sailors' perceptions and experiences. The subjects were sampled from sailors working in Dayyer harbor (a harbor in the south of Bushehr province). They were selected purposively to account for maximal diversity in different age groups. Sampling continued up until data satiation. Overall, 22 subjects participated including 19 sailors and 3 afflicted with skin cancer who used to be sailors. Inclusion criteria were at least one year of sailing experience, permanent residence in Dayyer harbor and full consent to take part in the research. The interviews took 35 to 65 minutes in length to conduct. To extend the interview content, a review of skin cancer literature was done in the light of PMT through a qualitative approach. Interview questions were sent to health education specialists as well as qualitative researchers. Their feedback was used for a final review of the interview content.

Before each interview, the purpose of research and why the interview was to be audio-recorded were explained to subjects. They were ensured of the process and that their voluntary participation was welcomed. Interview questions were designed based on the perceived cost of response construct of PMT. During the interviews, it was attempted to make the least intervention in the process. Meanwhile, it was also attempted to stop occasional deviations by asking appropriate questions. To elaborate on the content, exploratory questions were also added occasionally such as "what do you mean?" or "Can you explain more?" or the subject was asked to provide examples to clarify what he meant. At the end of each interview, the key points raised were summarized and paraphrased so that their accuracy could be confirmed by the subject. In the case of ambiguity, the subject was asked to clarify the issue.

All interviews were audio-recorded and then precisely transcribed. The transcriptions were then provided to subjects who went through them for confirmation. They were also reviewed several times by the present researchers. The written texts were typed in Microsoft Word and run in MAXQDA 10 for qualitative analysis. Data analysis was done through guided qualitative content analysis. The recorded audio tracks were played more than once and were transcribed carefully. Afterwards, while the interview textual content was carefully read, the text was abstracted into several meaning units which were later on coded. Then, the codes were cross-compared in terms of similarities and differences and were then put in a number of categories and sub-categories. To check the accuracy and stability of data, transferability, credibility, dependability and conformability criteria were used.^[17] In this research, to increase credibility of data analysis, the coding and review of the codes, categories and sub-categories were all done by the present researchers. Besides, the researcher's long experience of being among sailors and attaining their trust was also used. To enhance dependability, the audio-recorded tracks were

compared with transcripts. External checks were used to enhance conformability and to improve transferability of data, the interview content, meaning units and extracted codes were availed to some of the participants.

Results

Analysis of Iranian sailors' perceptions and experiences of the cost of response related to skin cancer protective behaviors led to 1 theme, 3 categories, 8 sub-categories and 158 initial codes. The Participants' personal and social traits are summarized in Table 1. Cognitive, psycho-sociological and financial source limitations were taken as categories. Table 2 reports on the theme setting, coding, categorizing and sub-categorizing procedure. In the proceeding, direct quotations will be presented from the participating sailors which better shows concepts in main categories.

Cognitive limitations

Low awareness and knowledge: The majority of sailors was scarcely informed about skin cancer and did not perceive them susceptible to the disease. A number of sailors grew false conceptions and talked about ineffectiveness of such behaviors in preventing skin cancer. With this respect, a sailor maintained:

"I feel good and have no problem. Why should I ever think about skin cancer? Am I supposed to be afflicted with it? Never ever. I feel OK" (Participant No. 7).

Another explained: "I think using protective does not preclude skin cancer. How can we know wearing sunscreen stops skin cancer? I think such things are not protective against cancer" (Participant No. 11).

False conceptions: About half of sailors had false conceptions of protective behaviors and their effect on reduced risk of skin cancer. They mentioned the ineffectiveness of wearing sunscreen and long sleeves.

"When I wore sunscreen, I did not feel comfortable at all. Such things do not go well with our work. How can we wear sunscreen in such humidity? Such stuff has no effect on reducing

the disease" (Participant No. 3)

"Well, of course we can't work well in long sleeves. I don't think wearing long sleeves can reduce skin cancer. Such things do not work" (Participant No. 13)

Some sailors maintained why they did not wear sunscreen were that they perceived it harmful and containing chemicals.

Concerning this, a sailor said: *"Sunscreen has chemicals in it and would damage skin. I will never wear it"* (Participant No. 10).

Psycho-sociological limitations

Low motivation and encouragement: Several sailors mentioned fatigue and demanding work conditions due to hot and humid weather as the main reasons for being less motivated for protective behaviors.

"The weather we've got here kills a man. When dead on our feet, we no longer feel we can protect ourselves" (Participant No. 11).

About half of sailors said none of the healthcare staff or a single doctor so far in the health center made any advice on protective behaviors.

"No, no one has ever warned us, neither our own doctor nor the health staff" (Participant No. 4)

"For me, this is the first time I ever hear of such issues. Well, why has no one ever told us to protect ourselves" (Participant No. 8).

Belief in fate: Some of the sailors, initially, attributed skin cancer to chance or fate. A few found it in God's or destiny's hands, as in *"well, let's see what will happen. When the time for a disease comes, you go down with it. There is nothing you can do and this is one's fate"* (Participant No. 12).

"God's will come true for sure, and such things cannot stop it, cannot stop a disease We are to die anyhow in a way. Whatever God wills soon comes true" (Participant No.4).

Peer humiliation: A number of sailors reported the use of

Table 1: Sailors' personal and social traits in the qualitative research.

Variables		n	%
Age	20-30 years	7	39
	31-40 years	9	41
	41-50	6	27
Education	Below diploma	14	63
	Diploma	6	27
	University degree	2	9
Marital status	Married	17	77
	Single	3	13
	Divorced	2	9
Work experience	Below 5 years	6	27
	5-0 years	9	41
	10 years or higher	7	39
Insurance	Yes	15	68
	No	7	39
Experience of sunburn	Yes	8	36
	No	14	63

Table 2: Code extraction, theme, and category and sub-category formation among sailors.

Code	Sub-category	Category	Theme
A low level of awareness			
Feel healthy	Low awareness and knowledge		
Unawareness of the efficiency of protective behaviors			
Not feel positive about wearing sunscreen		Cognitive limitations	
Feel negative about the chemicals in sunscreen			
Find it disturbing to wear long sleeves while working	False conceptions		
Refrain from wearing sunscreen due to moist in air			
Fatigue			
Not to be recommended by doctor	Low motivation and encouragement		
Be unwilling to show protective behaviors			
Chance and fate		Psycho-sociological limitations	Perceived cost of response
God	Belief in fate		
Peer criticism			
Peer humiliation	Peer humiliation		
Responsibility for family			
Prioritize making a living	Living issues		
Work/business			
Accommodation for children	accommodation	Financial sources	
Higher cost of living			
High cost of sunscreen			
Instability of prices	Expensive goods		

protectives including sunscreen and long-sleeved clothes a means of making peers humiliate them in the workplace. Concerning this, a sailor put it:

"I recall I wore sunscreen once and was grinned at by a colleague who said that's what women do! It has nothing to do with our job. I was laughed at which I can never forget" (Participant No. 8).

Another sailor explained: *"It was about two years ago when it was truly hot. I wore a cap and scarf and covered myself completely. When I reached the harbor and got on a boat, a friend picked on me and asked why I was covering myself like that. He insisted I could not get to work like that and I would get distracted"* (Participant No. 15).

Financial sources

Living issues: Many sailors seriously dealt with financial problems, family burden and making a living. They were concerned with supplying basic needs in life as a priority in work. Instances are:

"Of course, right now making a living is a must. All prices are high and there is no peace in the market. I should care about my own job and make a living" (Participant No. 16).

"I'm a breadwinner and am supposed to support a family. The costs are high and I should find a way to pay for them" (Participant No. 1).

Accommodation: A few sailors showed concern about children's accommodation. They felt responsible for providing accommodation for them. With this regard, a sailor said: *"We are truly concerned as our children have grown and now want to have a house of their own which we should supply"* (Participant No. 4).

High price of goods: Another issue raised by the sailors was the high cost of life, instability of prices in market and the high cost of sunscreen. Accordingly, a sailor complained: *"Sunscreen is expensive. How can we pay for that? All prices have increased and life is hard"* (Participant No. 18).

Discussion

The present research was the first qualitative attempt to explore Iranian sailors' perceptions and experiences of protective behaviors against skin cancer. Sailors, not unlike external workers, are susceptible to skin cancer. PMT and the perceived cost of response construct were used to explore sailors' experiences and perceptions. The categories of perceived cost of response were extracted as cognitive limitations, psycho-sociological limitations and financial sources.

In the present research, cognitive limitations included low awareness and knowledge and disbelief in susceptibility to skin cancer. In different qualitative studies, low awareness and knowledge were also taken as barriers to adopting protective behaviors.^[18-21] Similar to the present findings, kidney transplant recipients did not perceive themselves prone to skin cancer and did not perceive skin cancer as a major health issue.^[22] On the contrary, Hamilton et al. reported Australian parents' awareness of protective behaviors such as wearing a cap and sunscreen as desired.^[23]

Among other cognitive barriers to protective behaviors were false conceptions of adopting preventive behaviors such as refraining from wearing long-sleeved clothes and sunscreen due to inconvenience. A body of research was consistent with the present findings and reported on inessentiality of wearing sunscreen, feeling uncomfortable to wear sunscreen, finding chemicals in sunscreen harmful and discomfort in wearing long clothes.^[20,24-26]

Thus, in order to promote sailors' knowledge, remove false conceptions and emphasize the essentiality of adopting protective behaviors, certain educational strategies should be implemented. A set of protective behaviors is recommended that can play a key role in preventing skin cancer.

Another finding of the present research is psycho-sociological limitations. Low motivation and encouragement to adopt protective behaviors, work-induced fatigue and bad weather besides miscommunication and lacking advice on health staff's side to adopt such behaviors are among points raised by the participating sailors. Consistent with the present findings, an American study exploring parents' and children's perceptions mentioned unpleasant weather, lack of proper clothes in hot weather and lack of doctor's advice to encourage protective behaviors as the main barriers to such behaviors.^[20] In contrast, English and Australian university students' experiences show adequate motivation for adopting protective behaviors. Peer pressure, media, family and childhood habits can be seriously involved in motivating individuals.^[27,28]

Proper communication with health staff and required recommendations to encourage sailors to adopt protective behaviors play a key role in preventing skin cancer. Moreover, it is recommended to encourage sailors to monitor themselves and screen for skin cancer so that early diagnosis of skin cancer can be made possible.

Another barrier to adopting protective behaviors, as raised by sailors, was fate and the chance of dying due to a disease. With this respect, Khodayarian et al. pinpointed the role fate or chance played in the incidence of a disease among women Participants.^[29] Correcting such beliefs is essential to prevent diseases. Individual role and belief is to be taken into account in educational interventions.

A number of sailors mentioned peer humiliation as a barrier to adopting protective behaviors such as wearing sunscreen or long-sleeved clothes. In other research, cultural pressure and peer pressure were found as barriers to protective behaviors.^[17,22] The tremendous effect of peers on receiving or not receiving protective behaviors warmly is undeniable. An interventional strategy to adopt protective behaviors is to keep an eye on sailors' peers. Sailors' family and friends should be taken into account in developing and implementing educational programs for them.

Among other barriers to the adoption of protective behaviors are financial sources including the ever-rising cost of life, high price of sunscreen and their prioritizing work over other stuff, as pinpointed by the majority of sailors. In an extensive body of research, the high cost of sunscreen was mentioned as a key barrier.^[15,17,19,22]

On the contrary, English university students stated health and protective behaviors as a priority.^[25] Raising knowledge and awareness does not suffice on its own. Therefore, it is essential for harbors and shipping offices to pay considerable attention to sailors support them and reduce financial issues. It is inevitably essential to develop and continue supportive programs for

relevant organizations to promote protective behaviors against harmful rays of sun.

The present findings revealed that Iranian sailors were not aware of their susceptibility to skin cancer. Besides their inadequate knowledge, their protective behaviors are also underdeveloped. At the core of the educational program should be the correction of false beliefs to be unsusceptible to skin cancer. It is essential to prioritize health staff's role to communicate and recommend protective behaviors and screening so as to make early diagnosis of skin cancer possible. It is recommended to develop diverse and dynamic educational programs to increase sailors' knowledge and adoption of protective behaviors.

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Competing Interest

The authors declare that they have no competing interests.

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