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A Study of The Coastal Care Education-Based Program in Gilan Province, Summer 2023, Iran

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Original Article

Abstract

INTRODUCTION: Deaths from drowning at sea and recreational diving annually cause irreparable damage with the start of summer trips to the coasts of Gilan. Thus, the present study aimed to investigate the effectiveness of the coastal care education-based program.

METHODS: In this descriptive-analytical study, data were collected with a 45-item researcher-made questionnaire on a 5-point Likert scale. The reliability and the validity of the questionnaire was confirmed with a Cronbach's alpha (0.7) and by 12 specialists. The statistical population (N=450) includes supervisory agents, rescuers, lifeguards, coastal guards, field training instructors, relief workers, and young members of the Red Crescent Society of Gilan province. Finally, 207 people selected and studied using Morgan table. Data analyzed using SPSS-27 software.

FINDINGS: According to the findings, the age group of 30 to 44 years has the highest frequency with 89 people (43.0%), a total of 123 respondents (59.4%) were male and associate and bachelor's degrees each have the highest frequency with 59 people (28.5%). The 45-items questionnaire were categorized into six sections including demographics (5 items), self-help skills (8 items), knowledge of coastal information (8 items), knowledge of coastal hazards (8 items), skills in using buoyancy equipment (8 items), and coastal experiences (8 items). About 12 questions with the highest mean responses were identified as effective factors of the education-based program. The correlation between the selection of safe places for swimming by tourists was estimated to be significant ($p<0.05$).

CONCLUSION: The results of the study showed that the successful implementation of the sea sanitation plan with the approach of preventing drowning incidents and selecting safe swimming locations depends on the development of a coastal care education program, including face-to-face education, and then on ensuring the health of the coastal strip.

Keywords: Coastal care; Prevention; Awareness; Field training; Red Crescent Society.

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Introduction

Every year, with the beginning of summer trips to the beaches of Gilan, deaths and injuries from drowning in the sea and recreational swimming cause irreparable damage. Despite the fact that the responsible organizations have created areas under the name of the Sea Sanitation Plan to protect coastal tourists, it is still seen that most tourists choose pristine, dangerous beaches, free from the presence of lifeguards and rescue forces, for recreation and swimming. Gilan province is located in the north of the country and is centered in Rasht city, and the majority of the people speak the Gilaki dialect. The mild climate and abundant natural beauty have made this province one of the attractive tourist destinations with quick and cheap access compared to the capital in Iran. The proximity of about 313 kilometers of the plains of Gilan to the Caspian Sea has led to the emergence of beaches suitable for swimming and recreation with dense forests and delightful lagoons, which in all seasons of the year have motivated thousands of families and

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tourists to travel and explore the beaches of Gilan, so that travelers can benefit from the nature and divine blessings of the land of Gilan.

Coastal areas have created a beautiful combination of the sea, the beach, and a relaxing environment, so people have paid special attention to coastal areas since ancient times. (1)

Ramezannejad & Roknadin Eftekhari (2020) believed that by 2022, there would be only 21 swimming areas on the coast of the Gilan Sea under the title of the Sea Sanitation Project, and a total of 35 kilometers would be partially covered by law enforcement, safety, and medical services. (2)

Qoreishi Minabad et al (2011) believed that the increasing number of drownings and the number of coastal areas that have been sanitized showed that coastal tourism requires strategic planning to overcome the unfortunate situation of deaths and drownings on the coast of Gilan. (3)

According to the order of the President of the 13th government in mid-1401, liberating 313 kilometers of the coastline from illegal occupation and removing the encroachment from these lands was issued, and this matter was prioritized by the Gilan Governorate. This measure was considered very desirable and efficient for the government's commercial and economic purposes, but it resulted in the creation of a free-swimming area without supervision and safety facilities for passengers. On the other hand, the opening of free trade and economic zones, the operation of the Qazvin-Rasht freeway and railway line, led to an unprecedented welcome for passengers in Nowruz 2024 and the registration of 31 million trips in the vehicle counting system in Gilan. (4)

Regarding the number of drowning deaths, the Director General of Forensic Medicine of Gilan Province stated that 48 people died in Gilan in in the first four months of 2023 due to drowning. Last year, this number was 40, which is a 20% increase compared to the previous year. (5) If the response management process to coastal disasters is like in previous years, it could cause serious harm to tourists and coastal communities and increase the number of fatalities on the beaches and seas of Gilan province. (6)

In June 2023, the Governor of Gilan issued a decree assigning the responsibility of the Drowning Prevention Committee in the Coastal Management Plan to the Gilan Red Crescent Society (RCS). Subsequently, the Gilan RCS imposed physical restrictions to prevent tourists from accessing dangerous swimming areas in the summer of 2023, and designed an education-based coastal surveillance plan by implementing interventions such as short-term safety training for tourists, travelers, and indigenous people living in coastal communities with the approach of increasing awareness of dangers and safety at sea; as well as providing life safety for tourists in aquatic environments with the approach of improving swimmers' safety; maintaining safety conditions in coastal environments (7) swimming and water safety training for children and adults; empowerment and skill training for specialized coastal watchmen and lifeguards (8); installation of warning signs and signs; installation of billboards on freeways leading to Gilan and coastal cities; determination and marking of coastal danger points (9); launching a virtual warning system for rough sea conditions; comprehensive program for continuous coastal monitoring and evaluation; supervision of the deployment of lifeguards and care of the infrastructure created to ensure the security of swimming areas; determination and safe stabilization of specific areas for swimming (sea sanitation plan); deployment of operational teams equipped with ambulances, jet skis, and lifeboats; providing safety equipment in (individual and group sections for beach guards and lifeguards); modernizing and completing operational coastal and marine rescue and relief vessels; increasing specialized rescue and relief and medical posts on beaches; checking timely payment of salaries and wages for lifeguards and coastguards. (10)

A review of research conducted on the category of coastal tourism shows that most of the attention has been paid to the economic, social, cultural and environmental aspects and impacts resulting from the development of coastal tourism. Meanwhile, especially in recent years, attention to environmental issues and sustainable development and coastal tourism has been of greater importance in tourism studies and articles, but providing specialized discussion on preventive issues of marine and coastal disasters and incidents, as well as the education-based coastal surveillance program with the approach of reducing the number of drownings of coastal tourists, has not been considered and favored by the authors of scientific research texts.

Ghaderi et al. (2018) concluded in their research that adopting a coherent and integrated inter-organizational management approach, while

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being desirable and popular, requires operationalizing criteria such as creating a legal framework and clarity and transparency of regulations, financial support, sufficient clarity in determining responsibility, decentralization and fair distribution of power, culture building, strengthening a sense of social responsibility and a sustainable attitude and logic among organizations involved in and related to coastal tourism, which will not be easy to implement in some circumstances and countries.(11)

Moogouei et al. (2017) concluded in their research that reviewing and refining tourism laws, developing infrastructure related to tourism, not issuing construction permits in coastal areas and closely and seriously monitoring them, simultaneously developing sustainable coastal and marine tourism, providing facilities to the private sector and supporting this sector to build and improve the quality of tourism complexes, managing waste and effluents in coastal areas, and allocating sufficient budget to support the coastal tourism industry are essential components for a coastal tourism development program in Nowshahr County, Mazandaran province.(12)

Iqbal et al. (2007) conducted a study to examine the results of implementing educational methods, providing care to adult swimmers, and educating children and young people against the dangers and harms of aquatic environments and seashores in Bangladesh. According to the results, drowning is one of the causes of death in the world, with about 360,000 people dying in aquatic environments every year due to drowning. The frequency of drownings of children and adolescents in aquatic environments is very common, but it is preventable. The researcher proved that the destructive impact of drowning on the families of drowning victims is often ignored by those responsible for drowning prevention in terms of livelihood, culture, society, and economy. The researcher concluded that responsible organizations can prevent drowning by effectively implementing an educational behavioral intervention, providing informed coastal care, and observing all relevant components of the safety and health of coastal tourists, in order to reduce the number of deaths in aquatic environments and coastal shores.(13)

In fact, the overall goal of this study is to investigate the effectiveness of the coastal care-based education program in the coastal strip of Gilan province and to state these specific objectives as follows:

- Determining the effective components in the coastal surveillance education program to reduce the time for providing assistance to drowning and coastal injured people;
- Determining the relationship between effective variables in creating safety for tourists in coastal communities of Gilan;
- Determining effective indicators in raising awareness and training in recognizing the dangers in the sea and beaches and selecting safe areas for swimming;
- Providing a method for developing multi-level educational programs for children, adolescents, adults, and lifeguards and coastal guards;
- Determining the effectiveness of distributing safety equipment among tourists and rescue equipment among lifeguards;
- Providing effective solutions to reduce the drowning statistics to zero for the coming years.

Methods

This is an observational, descriptive-analytical survey. The main approach of this study is to investigate the effect of educational and awareness-raising measures and the deployment of logistical equipment in the "Education-Based Coastal Surveillance" program to reduce drowning statistics in a four-month period (May 28 to September 28, 2023) in Gilan province. Demographic variables included gender, age, marital status, occupation, and education, and the dependent variable was the choice of safe swimming locations by tourists. In this study, 302 identified dangerous points of the coastal strip for tourist gathering in Gilan province within a 313.5 km radius of Gilan were examined.

The selection and distribution of hazardous locations were determined during a field visit before the implementation of the plan by a team consisting of experts from the Gilan Governorate, the Governorate of coastal counties, the Lifeguard Board, the Police Force, the Municipality, and the RCS.

The selection and distribution of hazardous locations was carried out by an expert team consisting of experts from the Gilan Governorate, Coastal counties governorate, Lifeguard Board, Law enforcement/Police, Municipality, and the RCS, which were determined during a field visit before the implementation of the plan .The research team of this article had no comments on

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the selection of the aforementioned locations.

The statistical population (N=450) includes supervisory agents, rescuers, lifeguards, coastal guards, field training instructors, aid workers, and young members of the RCS of Gilan province which were randomly selected using a systematic method. The statistical sample size of this study was calculated using the Morgan sample size determination table as 207 people (n=207).

In this study, a researcher-made questionnaire with a 45-item design was used in six sections, including demographics (5 items), self-rescue skills (8 items), knowledge of beach information (8 items), knowledge of beach hazards (8 items), skill in using buoyancy equipment (8 items), and beach experiences (8 items) and the questions were considered on a Likert scale. Internal consistency was used and measured with Cronbach's alpha coefficient in order to determine the reliability of the questionnaire. The minimum acceptable value of the coefficient, which indicates the reliability of the questionnaire, is 0.7, but the value (0.6) was also considered acceptable in this study.

The validity of the questionnaire was reviewed and declared acceptable by 12 experts and specialists in the fields of disaster management, urban rescue and relief operations management, and tourism management. The collected data were analyzed using SPSS-27 software and Chi-square and Cramer's correlation coefficient were also used to analyze the relationship between choosing a safe place for swimming and effective components in reducing beach hazards.

Findings

Descriptive Findings

The descriptive findings of this study are related to demographic characteristics and the response rate to the questionnaire questions. By examining the demographic characteristics of the questionnaire, it was determined that the average age of the study sample was 33 years old and the standard deviation of this average was (3.37) years old, and the lowest and highest ages of the respondents were recorded as 18 and 64 years old, respectively. (Table 1)

In analysis of the questionnaire questions, 62% of respondents declared the field and face-to-face training of the coastal surveillance program effective. About 72% selected the option "strongly agree" with the creation of physical restrictions to prevent access of private cars and recreational motorcycles to the coastal strip. About 67% of respondents did not pay attention to or had not seen the information billboards posted on the freeway and on the roads leading to the coast. About 61.4% of the billboards of "Let's Not Drown" campaign were considered interesting. Also, 74.8% of participants considered increasing and diversifying warning signs in dangerous coastal areas, as well as increasing the number of warning flags, weather and rough sea signs for swimming, to be effective in reducing casualties and deaths in coastal areas and aquatic environments.

Table 1. Description of the study subjects based on demographic variables

Variables	Classes	Frequency	Percentage
Age group	>29	59	28.5
	30-44	89	43
	< 45	59	28.5
Marital status	Single	99	47.8
	Married	108	52.2
Gender	Female	84	40.6
	Male	123	59.4
Occupation	Governmental	79	38.2
	Free	60	29
	Academic	68	32.8
Education level	Diploma	50	24.2
	Associate	59	28.5
	Bachelor	59	28.5
	Master & PhD	39	18.8

About 90.6% of people believed that receiving field training on beaches by the RCS coastal care groups can familiarize and inform tourists about the marine hazards and threats, specific weather characteristics, and breaking and dangerous waves. In addition, 89.8% of people considered the installation of signboards, awareness billboards, and information signs on roads leading to the beaches of Gilan province to be effective in selecting safe and sanitized coastal areas. In this regard, 100% of respondents considered the presence of lifeguards at beach resorts to be reassuring and a source of security for tourists and travelers. In addition, 75.9% of people considered the use of safety and buoyancy equipment such as life jackets, life buoys, life rings, and compressed air belts while swimming to be effective in reducing the risk of drowning.

Regarding the traffic of recreational boats in the swimming areas for women and men and recreational areas, 76.7% considered the traffic of recreational boats and jet skis to be dangerous, and 12.1% considered them to be reassuring. About 79.1% of the participants considered the presence of specialized lifeguard and ambulance teams on the beach and swimming areas to be a

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source of confidence for their recreational activities in water environments. 44.2% stated that rescue ambulances, rescue boats, and the presence of lifeguard teams in coastal resorts were good criteria for tourists to choose a swimming location.

Table 2 shows the results of prioritizing the 12 questions of the questionnaire. As can be seen, the four questions on the impact of face-to-face training, deployment of lifeguards in special swimming areas, deployment of lifeguards in dangerous areas, and installation of warning signs and flags on the coastline have the highest averages.

Table 2. Prioritizing factors affecting the effectiveness of the coastal care education-based program (n=207)

Rank	Item	Standard Deviation	Average Scores
1.	Face-to-face field training	0.607	4.28
2.	Deployment of lifeguards in special swimming areas	0.609	4.17
3.	Deployment of lifeguards in dangerous areas	0.611	4.09
4.	Installation of warning signs and flags on the coastline	0.719	4.01
5.	Deployment of rescue boats along the coast	0.651	3.80
6.	Deployment of ambulances in the sanitized swimming area	0.642	3.76
7.	Creation of special swimming areas for children	0.721	3.51
8.	Restriction of recreational boat traffic near the coast	0.762	3.50
9.	Installation of information billboards on freeways	0.868	3.38
10.	Blocking of routes leading to dangerous beaches	0.857	3.34
11.	Daily assessment of the deployment status of operating teams	1.17	3.31
12.	Timely payment of salaries and wages of lifeguards and lifeguards	2.61	3.19

***Scale**: Strongly agree: 5 Agree: 4 No opinion:3 Disagree:2 Strongly disagree:1*

Table 3. Correlation between 4 factors affecting the effectiveness and selection of a clean swimming area

Influential components	Correlation coefficient
Face-to-face field training	0.658*
Deployment of lifeguards in designated swimming areas	0.630*
Deployment of lifeguards in dangerous areas	0.810*
Installation of signs and flags warning of existing beach hazards	0.360**

Significant levels: *1% level; **5% level

Analytical Findings

The analytical findings of this study are related to the relationship between the four priority components mentioned in Table 2 and the variable of choosing a safe place for swimming by tourists. To examine the relationship, the Chi-square test and Cramér's correlation coefficient were used. The results of Table 3 show that there is a statistically significant relationship between choosing a safe place for swimming and the effect of face-to-face training, deploying lifeguards in special swimming areas, deploying lifeguards in dangerous areas, and installing warning signs and flags on the coastline.

Discussion and Conclusion

This study was conducted to investigate the effectiveness of the educational-based coastal surveillance program of the Gilan RCS, and the impact of components such as installing signs and flags warning of existing coastal hazards, equipping, appropriate and securing the physical environment on the beaches, face-to-face and field training on the beaches, cultural programs, educational and awareness programs on the coastline of Gilan province has been the focus of researchers. This program first began by providing basic rescue and preventive information to tourists in a social campaign titled "Let's not drown", and then by installing information billboards on the freeway and awareness signs, boards and flags on the routes leading to the beaches, the message and concepts of reassurance that the beaches are safe were conveyed to tourists.

The results of a similar study in the category of coastal tourism by Ghaderi et al. (2018) showed that if travelers feel unsafe and dangerous about their coastal travel destination, they will never go to coastal areas for swimming and water recreation, and the basis for choosing a travel destination for water recreation, including swimming, is the safety of the destination, of

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course, if the trip is done as a family. Meanwhile, there are always hidden dangers on the seashore that tourists are not aware of or have very little information about. From this view, many dangerous coastal areas are considered safe places for travel and recreation. (11)

Iqbal et al. (2007) considered the absence of crowds and the absence of monitoring, enforcement, and rescue institutions as criteria for tourist destinations for friendly and non-family trips, which are usually made by single people and teenagers and young adults. (13)

And potential dangers of the sea are usually not a priority criterion for selecting a tourist destination. In other words, the age variable is a factor influencing the rate of safe behaviors in coastal areas and aquatic environments by tourists and travelers. In fact, the effect of the age variable on the rate of cooperation with the RCS intervention groups is confirmed with a highly significant level.

The results of the research findings prove that only 11.9% of tourists traveling to Gilan province are aware of the existence of breaking waves in the aquatic environment near the coast, and 90.6% of these people believe that receiving field training on beaches provided by RCS training groups can familiarize travelers with maritime dangers and threats, including specific weather characteristics and the existence of breaking and dangerous waves. The results indicate that installing awareness and information billboards on roads leading to Gilan province has been effective in helping tourists choose safe beaches.

Based on the results of this study, inter-sectoral cooperation between managers of organizations with economic and cultural stakeholders present and employed in coastal communities, and cooperation between this group and local officials including governors, mayors, district governors or prefects and members of the Islamic Council of coastal areas to block private vehicle access routes to dangerous areas, construct parking lots in the vicinity of the sanitized beaches, designate special and separate areas for swimming in three groups: women, men, and children, implement optimal and safe swimming time management, facilitate the administrative process for issuing permits to establish economic stalls such as restaurants, shops, etc. within the sanitized areas, recruit, organize, and train rescuers from residents and employees of coastal communities such as farmers, fishermen, etc., and utilize the human capital capacity of relief NGOs to be present on the target beaches in order to continuously warn tourists at risk of drowning, will result in the effectiveness of the program, reduce the number of drownings, and prevent man-made coastal accidents.

The results showed that using the capacity of famous people in the sports, economic, political, cultural, artistic and social fields on social networks leads to effectiveness and increases the audience's attention to the content and messages related to the education-based coastal surveillance program in Gilan.

Mousavi et al. (2023) in their results emphasize that despite the problems and difficulties in establishing interdisciplinary cooperation between organizations in charge of coastal tourism and stakeholders, sector safety management in coastal communities requires the creation of a legal framework and transparency of regulations, and the creation of a culture and strengthening of social responsibility, which can be effective in the comprehensive development of safe and desirable coastal tourism. (14)

Recommendations

Considering the results of this research and the growing status of coastal tourism in Gilan province, the following are suggested:

- Holding educational programs in schools to teach the principles of water safety, swimming, and safe behaviors on beaches and aquatic environments;
- Implementing and holding public training courses for adults and parents throughout the year on the subject of sea and beach safety principles in offices, industrial sites, and human gathering centers;
- Providing promotional programs and informing the subject of sea and beach safety principles through various media such as television, radio, the Internet, and social networks;
- Conducting specialized studies to analyze the factors affecting drowning incidents, including weather conditions, water depth, buoyancy, and beach surveillance throughout the year;
- Assessing the effectiveness of programs and policies implemented in previous years, conducting specialized studies to determine the effectiveness of coastal safety programs;
- Increasing social participation and designing a coastal surveillance program with the role of NGOs and volunteers;

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- Establishing emergency call stations equipped with modern and portable communication devices in fishing piers and coastal centers;
- Developing public first aid and rescue training quantitatively for members of the community;
- Using modern technology such as GPS tracking systems and satellite communication equipment on beaches for swimmers and coastal tourists;
- Increasing the number of crescent houses in coastal villages to create social cooperation and participation with local communities, local organizations, recreational and tourist centers so that joint programs and solutions can be implemented to increase coastal safety;
- Continuing to hold training and awareness courses on water safety for local communities, tourists and travelers;
- Increasing safety and health posts at the entry points of Gilan province and coastal cities, as well as along the coastline (dangerous points) in order to inform and raise awareness to sensitize and prevent tourists from being in dangerous areas.

Ethical Considerations

All ethical principles have been considered in this research. Participants were informed about the purpose of the research and the steps of its implementation.

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Author's Contributions

The study design belongs to Hadi Salimi and Saeed Yaghoubi Koupaei, and the main draft belongs to Morteza Adhami Farshami. Also, the Saeed Yaghoubi Koupaei and Morteza Adhami Farshami were responsible for methodology, data analysis, reviewing, and editing the submitted manuscript, and correspondence. It should be noted that the final draft belongs to the all authors.

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Conflict of Interests

The authors declare no conflict of interest.

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