



General Dental Practitioners as Potential Responders to Disaster Scenario in a Highly Disaster-prone Area: An Explorative Study

¹Gururaghavendran Rajesh, ²Almas Binnal, ³Mithun BH Pai, ⁴Vijayendranath Nayak, ⁵Ramya Shenoy, ⁶Ashwini Rao

ABSTRACT

Aim: The aim of this study is to obtain insights pertaining to disaster management among Indian general dental practitioners (GDPs).

Materials and methods: All GDPs in Mangaluru city, Karnataka, India, were included in the present study. Their willingness to participate in disaster management and their objective knowledge, attitude, behavior, and perceived effectiveness related to disaster management were assessed by a structured, pretested, self-administered questionnaire. Demographic information was also collected.

Results: Overall, 101 GDPs volunteered for the study, and 96.04% of respondents were willing to participate in disaster management. Mean knowledge, attitude, behavior, and perceived effectiveness scores were 52.65, 79.60, 41.55, and 64.20% respectively. Religion (odds ratio [OR] = -0.194, $p = 0.022$), marital status (OR = -0.222, $p = 0.040$), attachment to college (OR = -0.256, $p = 0.037$), familiarity with standard operating procedures (SOP; OR = -0.502, $p = 0.000$), and knowledge (OR = 0.265, $p = 0.003$) were significant predictors of behavior.

Conclusion: The GDPs reported knowledge and behavior scores which were low, while their attitude and willingness to participate were high. Demographic determinants might be critical indicators in disaster management scenario among GDPs.

Clinical significance: The present study has crucial implications for policymakers and curriculum changes to integrate dentists effectively into disaster response teams. As responsible

members of the society, the dental fraternity has critical contributions to make toward disaster mitigation. Integration of GDPs in a multidisciplinary team managing disasters might be crucial, especially in highly disaster-prone areas, such as India, with a definite paucity of resources.

Keywords: Dentists, Disaster management, Health care delivery system, Policy implications, Survey.

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INTRODUCTION

The word "disaster" has been derived from the words "dis" meaning bad and "aster" meaning "stars".¹ Disaster, hence, implies the effects of the bad influence of stars. More recently, disaster is identified as any particular event or a situation that "overwhelms local capacity, necessitating a request to a national or international level for external assistance".² With the frequency of disasters becoming alarmingly high, they have emerged as a threat to global health in recent times.

Disasters that disrupt the health and welfare of communities may be natural or artificial.³ Earthquakes, torrents, cyclones, tornadoes, and droughts are natural disasters, whereas events, such as armed combats, military emergencies, and acts of terror employing "chemical, biological, radiological, nuclear, and explosive devices (CBRNE)"⁴⁻⁶ are disasters that can be classified as artificial. These disasters can have a wide-ranging effect on communities.^{3,7} They lead to injuries and fatalities, destruction of public and personal property, displacement

^{1,3-6}Department of Public Health Dentistry, Manipal College of Dental Sciences, Manipal University, Mangaluru, Karnataka India

²Department of Oral Medicine and Radiology, Manipal College of Dental Sciences, Manipal University, Mangaluru, Karnataka India

Corresponding Author: Almas Binnal, Department of Oral Medicine and Radiology, Manipal College of Dental Sciences Manipal University, Mangaluru, Karnataka, India, Phone: +918242445858, e-mail: dr_almas123@yahoo.co.in

of populations, and emotional bereavement. Ultimately, they affect the progressive development of an entire nation and may, in fact, push back the progress of the nation by several decades.⁸ Becker⁹ and Bhavé et al¹⁰ have observed that the most severe consequences of disasters can be observed in developing countries with large populations affected by poverty.

Trained workforce who can contribute effectively to the management of disasters is one of the crucial aspects of disaster management. Due to the ensuing shortage of trained workforce that one can observe immediately after a disaster, this particular situation has been termed as "surge environment".^{5,11} Conventionally, only medical personnel are pressed into duty in the aftermath of a disaster. Other health professionals may have important contributions to make toward mitigation of disasters, thereby bridging the gap created by a shortage of conventional medical personnel.^{4,5} It has been observed that dentists may contribute efficiently and meaningfully to disaster management with minimal additional training.

Initially, dentists aided in mitigation of disasters by virtue of their expertise in forensic odontology and as members of military and "Disaster Mortuary Operational Response Teams".¹²⁻¹⁶ Dentists possess various important skills that can be of significant contribution during the times of disasters, and the scientific literature is replete with documented instances highlighting the part played by dentists during the trying times of disasters.^{4,17-22} As they are considered by the general public to be respected members of the society,²³ they are entrusted with the responsibility of protecting the public. On ethical grounds, they are expected to work toward the betterment of the population.

Chhabra et al²⁴ have reported that Indian dentists in Rajasthan might constitute an ignored pool of personnel during disasters. Mangaluru city is a major port in Karnataka state located on India's western coastline between the Arabian Sea and the Western Ghats. It has also been reported that India is one of the many countries which are prone for disasters.²⁵⁻²⁷ The report on disaster scenario in India published by the Government of India in the year 2004 indicated that a total of 75.84% of India's coastline is susceptible to cyclones and tsunami.²⁸ The proximity of Mangaluru to the Western Ghats makes it vulnerable to the threats of landslides and probably to earthquakes. One also needs to consider the constant threat of CBRNE-related disasters. All these aspects render Mangaluru a highly disaster-prone city in India. Thus, there is a definite need to identify crucial areas pertaining to managing disasters in Mangaluru.

A number of students enrolling to dental institutions have increased significantly in recent times.²⁹ Earlier investigators have reported disaster management issues

among Indian dental students.^{30,31} As a consequence of increased enrollment to dental training, there has been an increase in the number of GDPs in India. Since they have established their practices in various parts of the country, GDPs have the distinct feature of having significant access to the community. This confers a crucial advantage to them, as it enables them to render timely and effective services during public health emergencies. This is, especially, of great relevance in developing nations, such as India, which are highly disaster-prone but have limited resources at its disposal. This research work is the first exploration pertaining to disaster management among Indian GDPs in a highly disaster-prone region.

MATERIALS AND METHODS

The GDPs in Mangaluru city, located in the Indian state of Karnataka, were the study subjects. Ethical clearance was obtained from the Institutional Ethics Committee, Manipal College of Dental Sciences, Manipal University, Mangaluru, India. The purpose of the study was explained to the GDPs, and they were invited to participate in the present research work.

A questionnaire was used to explore various issues pertaining to the management of disasters among the respondents.^{30,31} This questionnaire explored the participants' willingness to participate in disaster management, objective knowledge, attitude, and behavior related to management of disasters. The questionnaire also explored their perceived effectiveness and any prior training related to management of disasters. Items for the instrument employed in the present study were obtained from earlier research, relevant theoretical background, views of experts, and investigators' reflection.³⁰⁻³² A total of 26 items were employed to assess knowledge: 8 questions assessed attitude and behavior and 3 items were used to assess perceived effectiveness. Responses of "definitely yes", "yes", "neutral", "no", and "definitely no" on a 5-point Likert scale were used to assess attitude and perceived effectiveness. Behavior was assessed by response options <1 month, 1 to 6 months, 6 to 12 months, >1 year, and never.

Items assessing knowledge included common disasters, identification of victims, and bioterrorism. Questions that explored the need for dentists in the management of disasters, should they synchronize their work with other personnel in disaster management, should they keep abreast with recent advancements in disaster management, and need for record maintenance to aid in the identification of individuals were employed to assess the attitude of respondents. How frequently the respondents read about disaster management from journals and the Internet, record maintenance, and attending programs

which trained them in disaster management assessed the behavior of participants. Questions regarding whether the study subjects felt that they can act efficiently during times of disasters and whether they can recognize bio-terrorism and its signs and symptoms in the oral cavity assessed perceived effectiveness.

Knowledge was assessed on a scale from 0 to 26, attitude and behavior were assessed on a scale from 8 to 40 each, and perceived effectiveness was assessed on a scale from 3 to 15. Appropriate responses for knowledge were marked as "1", attitude and perceived effectiveness were marked on a scale from 1 to 5, ranging from definitely no to definitely yes, and behavior was marked from 1 to 5, ranging from never to <1 month. Pilot testing of the instrument was conducted before the main study. Final data collection was done from December 2015 to May 2016.

The MS Office Excel was employed for entering the data, and Statistical Package for the Social Sciences version 16.0 was employed for statistical analysis. Intergroup analysis for various parameters among age, gender, religion, marital status, qualification, years of practice, and attachment to college of the study subjects was assessed by employing Student's t-test. Correlation among different variables in the present study was performed by Pearson's coefficient. Multiple linear regression analysis was employed to explore predictors for

various variables related to disaster management. Level of significance for the present study was fixed at 5%.

RESULTS

Cronbach's alpha and split-half reliability values for knowledge were found to be 0.72 and 0.86 and those for attitude was 0.88 and 0.85 respectively. Items for behavior had Cronbach's alpha and split-half reliability values of 0.88 and 0.87, whereas for perceived effectiveness, it was found to be 0.78 and 0.83 respectively. All the GDPs in Mangaluru were invited to participate. A total of 120 GDPs were approached and invited to participate in the study. Overall, 101 respondents returned the questionnaire, representing a response rate of 84.17%. The average age of the respondents was 34.11 years, with a majority of 53 (52.48%) being males and 48 (47.52%) being females. A total of 76 respondents were Hindus (75.25%), whereas 25 (24.75%) respondents were of other faith. Overall, a majority of 75 study subjects (74.26%) were married, 63 of them (62.38%) had completed their postgraduation, and 76 respondents (75.25%) were attached to a dental institution. A majority of the 76 respondents (75.25%) had established their private practice ≤ 10 years ago (Table 1). Overall, the average knowledge, attitude, behavior, and perceived effectiveness scores of the study subjects were 13.69 ± 4.21 , 31.84 ± 5.00 , 16.62 ± 7.76 , and 9.63 ± 2.51 respectively (Table 1).

Table 1: Demographic variables and knowledge, attitude, and behavior about disaster management among study subjects

Demographic variable	n (%)	Knowledge (Mean \pm SD)	Attitude (Mean \pm SD)	Behavior (Mean \pm SD)	Perceived effectiveness (Mean \pm SD)
Age (years)					
21–25	68 (67.33)	13.31 \pm 4.334	31.32 \pm 5.199	16.69 \pm 7.802	9.49 \pm 2.403
25–30	33 (32.67)	14.48 \pm 3.898	32.91 \pm 4.454	16.48 \pm 7.775	9.94 \pm 2.715
Gender					
Male	53 (52.48)	13.87 \pm 4.306	32.15 \pm 5.419	15.92 \pm 7.529	9.40 \pm 2.803
Female	48 (47.52)	13.50 \pm 4.146	31.50 \pm 4.529	17.40 \pm 8.005	9.90 \pm 2.126
Religion					
Hindu	76 (75.25)	13.93 \pm 4.206	32.42* \pm 4.748	17.17 \pm 7.861	0.902 \pm 2.376
Others	25 (24.75)	12.96 \pm 4.238	30.08* \pm 5.431	14.96 \pm 7.323	1.465 \pm 2.806
Marital status					
Single	26 (25.74)	14.46 \pm 3.420	31.04 \pm 4.582	18.08 \pm 6.916	9.50 \pm 1.817
Married	75 (74.26)	13.43 \pm 4.445	32.12 \pm 5.139	16.12 \pm 8.007	9.68 \pm 2.712
Qualification					
BDS	38 (37.62)	13.95 \pm 3.377	31.03 \pm 4.284	15.71 \pm 6.742	9.32 \pm 2.182
MDS	63 (62.38)	13.54 \pm 4.666	32.33 \pm 5.361	17.17 \pm 8.310	9.83 \pm 2.679
Years of practice					
≤ 10	76 (75.25)	13.59 \pm 3.882	31.53 \pm 4.550	16.36 \pm 7.671	9.33* \pm 2.380
≥ 11	25 (24.75)	14.00 \pm 5.172	32.80 \pm 6.185	17.44 \pm 8.109	10.56* \pm 2.694
Attached to college					
Yes	76 (75.25)	13.62 \pm 4.421	31.89 \pm 5.245	17.63* \pm 8.101	9.71 \pm 2.627
No	25 (24.75)	13.92 \pm 3.581	31.68 \pm 4.269	13.56* \pm 5.701	9.40 \pm 2.121
Total		13.69 \pm 4.214	31.84 \pm 5.001	16.62 \pm 7.755	9.63 \pm 2.505
Percentage		52.65	79.60	41.55	64.20

*Significant at 5% level of significance, SD: Standard deviation; BDS: Bachelor of dental surgery; MDS: Master of dental surgery

Table 2: Distribution of study subjects regarding willingness to participate, previous training, and familiarity with national document regarding disaster management

Question	Yes	No
	n (%)	n (%)
Willingness to participate in disaster management	97 (96.04)	4 (3.96)
Previous training on disaster management	5 (4.95)	96 (95.05)
Familiarity with "SOP for responding to natural disasters, 2010"	11 (10.89)	90 (89.11)

Respondents belonging to Hindu religion reported higher attitude scores than those belonging to other religions ($p = 0.042$, confidence interval [CI]: 0.09–4.60). Respondents with ≥ 11 years of practice had higher perceived effectiveness scores than those with ≤ 10 years of practice ($p = 0.032$, CI: -2.36 to -0.11). Study subjects attached to private dental institution had higher behavior scores than those who were not attached to a private dental institutions ($p = 0.022$, CI: 0.60–7.54; Table 1).

A majority of 97 study subjects (96.04%) reported positively for willingness to participate in managing disasters, while only 4 respondents (3.96%) reported in the negative regarding the same. Only 5 respondents reported earlier training on managing disasters, while a vast majority of 96 respondents (95.05%) had no previous training. Similarly, a majority of 90 study subjects (89.11%) reported that they were not familiar with the Government of India's SOP for responding to natural disasters, 2010, whereas 11 respondents (10.89%) reported familiarity with the document. Participants who strongly agreed that they can appropriately respond to disasters were 27.91% ($n = 24$; Table 2).

It can be observed that there was statistically significant correlation between knowledge and attitude ($r = 0.25$, $p = 0.01$), knowledge and behavior ($r = 0.30$, $p = 0.00$), attitude and perceived effectiveness ($r = 0.21$, $p = 0.04$), and behavior and perceived effectiveness ($r = 0.47$, $p = 0.00$; Table 3). Statistically significant correlations were also observed between religion and attitude ($r = -0.20$, $p = 0.04$), years of practice and perceived effectiveness ($r = 0.21$, $p = 0.03$), and working in a dental institution and behavior of respondents toward disaster management ($r = -0.23$, $p = 0.02$; Table 4).

Results of multiple linear regression analysis indicated that age (OR = 0.609, $p = 0.025$), attitude (OR = 0.257, $p = 0.009$), and behavior (OR = 0.367, $p = 0.003$) scores emerged as significant predictors of knowledge scores among respondents, while knowledge emerged as significant predictor of attitude scores (OR = 0.288, $p = 0.009$). It can also be observed that religion (OR = -0.194, $p = 0.022$), marital status (OR = -0.222, $p = 0.040$), attachment to college (OR = -0.256, $p = 0.037$), familiarity with SOP (OR = -0.502, $p = 0.000$), and knowledge scores (OR = 0.265, $p = 0.003$) were significant predictors of behavior among study subjects. Results also indicate that years of experience (OR = 0.529, $p = 0.022$), familiarity with SOP (OR = -0.431, $p = 0.002$), and behavior scores (OR = 0.290, $p = 0.012$) were significant predictors of perceived effectiveness (Table 5).

DISCUSSION

Obtaining insights into various issues related to public health emergencies among Indian GDPs was the primary objective of the investigators. Literature exploring these

Table 3: Correlation analysis of knowledge, attitude, and behavior among study subjects using Pearson correlation

	Knowledge		Attitude		Behavior		Perceived effectiveness	
	r	p	r	p	r	p	r	p
Knowledge	–	–						
Attitude	0.250	0.012*	–	–				
Behavior	0.298	0.002**	0.069	0.494	–	–		
Perceived effectiveness	0.179	0.074	0.207	0.038*	0.473	0.000**	–	–

*Significant at 5% level of significance; **Significant at 1% level of significance

Table 4: Correlation analysis of demographic variables with knowledge, attitude, and behavior about disaster management among study subjects

Demographic variables	Knowledge		Attitude		Behavior		Perceived effectiveness	
	r	p	r	p	r	p	r	p
Age	0.132	0.190	0.149	0.136	-0.013	0.901	0.085	0.396
Gender	-0.044	0.663	-0.065	0.516	0.095	0.344	0.100	0.319
Religion	-0.100	0.318	-0.203	0.042*	-0.124	0.218	-0.155	0.122
Marital status	-0.108	0.283	0.095	0.345	-0.111	0.270	0.032	0.754
Qualification	-0.047	0.640	0.127	0.205	0.092	0.361	0.099	0.324
Years of practice	0.042	0.677	0.110	0.272	0.061	0.547	0.213	0.032*
Attached to college	0.031	0.758	-0.019	0.853	-0.228	0.022*	-0.054	0.593

*Significant at 5% level of significance

Table 5: Multiple linear regression analysis of various variables related to disaster management

Dependent variables	Independent variables	OR	95% CI for OR		p-value
			Lower	Upper	
Knowledge	Age	0.609	0.037	0.525	0.025*
	Attitude	0.257	0.054	0.379	0.009**
	Behavior	0.367	0.071	0.328	0.003**
Attitude	Knowledge	0.288	0.086	0.598	0.009**
Behavior	Religion	-0.194	-3.413	-0.273	0.022*
	Marital status	-0.222	-7.654	-0.186	0.040*
	Attached to college	-0.256	-8.875	-0.278	0.037*
	Familiarity with SOP	-0.502	-17.970	-6.883	0.000***
	Knowledge	0.265	0.173	0.802	0.003**
Perceived effectiveness	Years of practice	0.529	0.024	0.298	0.022*
	Familiarity with SOP	-0.431	-5.546	-1.354	0.002**
	Behavior	0.290	0.021	0.166	0.012*

*Significant at 5% level of significance; **Significant at 1% level of significance; ***Significant at 0.1% level of significance

issues among GDPs is scarce. This investigation is the first study to report GDPs' potential role in managing public health emergencies in a highly disaster-prone region in India. It highlights the policy implications for health care delivery system and adapting multidisciplinary approach to effectively tackle emerging public health issues.

Dentists initially contributed toward mitigation of disasters as experts in forensic odontology and as members of military and "Disaster Mortuary Operational Response Teams".^{14,16} Dentists' contributions in managing natural calamities, such as tsunamis³³⁻⁴⁰ and earthquakes^{41,42}; in accidents involving airplanes,⁴³⁻⁴⁵ trains,⁴⁶ ships,^{47,48} and burns⁴⁹; identification of unidentified bodies⁵⁰ and human remains⁵¹; and dealing with mass suicides⁵² and mass graves,^{53,54} homicides,⁵⁵ and terrorist attacks⁴⁰ have been documented. Kieser et al³³ have documented employability of dental records for the identification of tsunami victims in South Asia, while Wang et al⁴¹ have reported treatment of orofacial injuries among Chinese earthquake victims by oral and maxillofacial surgeons. With the advent of recent technological advancements, dental professionals' potential to contribute to disaster management was highlighted by Kieser et al.⁵⁶

Chhabra et al²⁴ have described certain issues pertinent to disaster management among GDPs in Rajasthan. Mangaluru is a city located in the Western Ghats of South India and might have different vulnerability and disaster management and mitigation issues compared with the dry and arid regions of Rajasthan. The questionnaire employed in the present study was tailor-made to reflect the same in the present study. Mangaluru also has a total of five dental colleges and seven medical colleges along with over 100 GDPs. Therefore, the disaster management scenario is considerably different from that in Rajasthan.

Respondents in this study had low knowledge scores, which are similar to the observations of Katz et al²¹ and Rajesh et al,^{30,31} but do not concur with those observed by

Colvard et al.⁵⁷ Low perceived effectiveness scores were observed in the present study, which are similar to that observed by Katz et al²¹ and Rajesh et al.^{30,31} This might be due to the absence of any specific training initiatives for Indian GDPs in mitigation of disasters.^{30,31} The respondents in the present study also reported higher attitude scores, which might indicate that they were interested in contributing effectively toward disaster management. Countries, such as the United States have taken definite strides in the process of integrating dentists in disaster management at various levels. This should serve as a useful indicator to decision-makers and policymakers in developing countries, such as India regarding the potential role that dentists can play in disaster management.

Respondents belonging to Hindu religion had higher attitude scores than those belonging to the other religions. These findings have to be confirmed by further explorations on the probable role of background factors in disaster management. Study subjects having experience of ≥ 11 years had higher perceived effectiveness scores than those who were less experienced. With increasing work experience, respondents might feel more confident in handling patients who need more complex treatment procedures, and this might be reflected in their perceived effectiveness. The GDPs attached to a dental institution reported higher behavior scores than those who were not attached to dental institution. Access to scientific literature, such as journals and articles, recent textbooks, exposure to continuing dental education, or continuing professional development programs in dental institutions might have led to higher behavior scores among respondents.

Results indicate that knowledge scores and attachment to dental college emerged as significant predictors of behavior scores. Knowledge forms the foundation, which might positively influence the behavior of respondents. Attachment to dental college might provide various avenues to update oneself with recent developments,

which might have had a positive influence on the behavior of respondents. Years of practice and behavior scores were significantly associated with the perceived effectiveness of respondents. As the experience increases, this might have a cumulative impact on the perceived effectiveness of the respondents. Higher behavior scores related to disaster management might enhance the perceived effectiveness of the participants.

Biases inherent with the use of questionnaires, such as yea-saying/acquiescence bias, social desirability, or faking good/bad (social desirability/deviation) biases will have to be considered. Use of Likert scales might involve the halo effect, positive skew, and end-aversion bias.³² Further research needs to be undertaken to fully understand the aforementioned aspects.

The necessity of involving and integrating medical and other health care personnel for handling disasters is imperative.⁴⁵ Coordinated efforts across different health professionals and different communities and agencies in different geographical localities, i.e., implementation of a multidisciplinary approach, is critical for effective disaster management. Including GDPs might be a step toward these combined coordinated efforts. This is particularly relevant to developing nations, such as India that face the dual issues of enhanced susceptibility to calamities and few resources. Bremer²⁵ has observed that medical intelligence and sociogeographical mapping are essential elements of disaster management. The GDPs need little further training to be a part of the team that efficiently mitigates disasters. Chhabra²⁶ has also highlighted the importance of building networks among different experts, communities, and countries to tackle various aspects of disaster management.

There are definite policy implications pertaining to training and curriculum development/modifications for health care professionals in India. The need for incorporation of competencies for disaster management at undergraduate training has been highlighted.^{58,59} This will enable dental professionals to be involved not only in disaster response but also in surveillance activities. Investigators have also highlighted the importance of dental professionals continuously familiarizing with scientific literature related to disaster management.⁶⁰

The importance of including aspects related to mitigation of disasters in the undergraduate dental curriculum has been highlighted.^{13,58} Attempts to undertake such endeavors have been reported in scientific literature.^{4,5,58,61} The topics that the Dental Council of India⁶² prescribes for undergraduate dental education in India might be of significant relevance to disaster management. Various aspects in microbiology, pharmacology, general medicine, general and oral and maxillofacial surgery, oral and maxillofacial radiology, and Public Health Dentistry

might have a special bearing on disaster management. Investigators have also reported that the prescribed disaster management competencies are already a part of the curriculum in dental undergraduate training.^{5,56} One can consider refining certain aspects of curriculum to lay more emphasis on disaster management at the undergraduate level. Financial aspects of additional undergraduate training and administrative aspects of including additional training in a curriculum which is already tightly scheduled should be considered in the context of curriculum changes.⁵⁸

Regular training programs for GDPs on disaster management might be a crucial aspect. Training programs similar to those currently being implemented in courses pertaining to basic and advanced life support should be considered for disaster management. Simon and Teperman⁶³ have stressed the need for developing credentialing systems for physicians and nurses for better responses during disasters. However, the shortcomings of such changes also need to be borne in mind. Tong⁶⁴ has observed that dentists might have to change their mindset so as to effectively perform in an area that is outside their normal practice. Dentists working in individual private practices might also have to adapt to working together in the team.

Undertaking training initiatives for individuals from different backgrounds during multidisciplinary endeavors might be challenging. Different baseline skill sets, diverse cultural backgrounds, dissimilar previous training experiences and work profiles, and financial aspects of additional training might pose special problems.^{59,65} Clear definition of target audience should be undertaken, and rendering tailor-made training for this target audience should be attempted. Besides, one has to consider the potential legal ramifications of involving GDPs in specific procedures during disasters.^{14,19,64} Kaur⁶⁶ has also highlighted the administrative issues that might arise in the wake of disasters in India. These crucial issues that might impede capacity building in managing disasters should be addressed.

Public health emergencies are a discipline that is constantly evolving by the day. One has to consider the new emerging infectious diseases and its potential implications on disaster management.⁶⁷ Identification of best practices pertaining to disaster management⁶⁵ and implementing evidence-based approach in disaster management^{68,69} are the need of the hour. One of the important aspects of research on disaster management in developing countries has been highlighted by Roy et al.⁷⁰ They have observed that the amount of literature being reported from developing countries is not commensurate with the number of disaster occurring in these regions. Further research from areas highly afflicted by disasters

needs to be conducted and reported to add to the evidence base pertaining to disaster management.

Investigators have observed that only minimal training was required for dentists who had undergone training under the National Disaster Life Support curriculum of the American Medical Association.⁵⁶ This indicates that dentists can be effectively and meaningfully incorporated into disaster management activities. Lessons gleaned from such exercises might have special relevance to India and other developing nations which have few resources, but which are highly vulnerable to disasters. Involving clinicians might have critical implications for effective disaster management.⁷¹ One also has to consider the involvement of other health care professionals, such as nurses, pharmacists, and physiotherapists to render disaster management more effective.

Comfort⁷² has observed that with the rate and manner in which populations are growing, shaping, and behaving, the risk of development of disaster is only increasing. This increasing frequency of disasters, especially in developing countries like India, is a major public health problem. Huge number of GDPs possessing skills that can aid in mitigating disasters in a nation with low resources calls for integration of various sectors for effectively handling public health emergencies. The present study highlights the curriculum and training implications for dental professionals in India.

CONCLUSION

Willingness to participate in mitigating disasters and attitude scores were high among Indian GDPs. However, low knowledge and behavior scores were observed. Respondents with experience ≥ 11 years had higher perceived effectiveness scores than those with lesser experience. Respondents attached to dental institutions had higher behavior scores than those who were not attached. Knowledge was significantly associated with attitude and behavior scores, whereas attitude and behavior were significantly associated with perceived effectiveness scores. Religion of respondents showed significant correlation with attitude, whereas years of experience showed significant correlation with perceived effectiveness. Attachment to a dental institution was significantly associated with behavior of the study subjects. Religion, marital status, attachment to college, familiarity with SOP, and knowledge scores emerged as significant predictors of behavior among study subjects.

CLINICAL SIGNIFICANCE

Integrating various health care professionals and adopting a multidisciplinary approach need to be considered earnestly. This approach, especially, is relevant in highly

disaster-prone countries like India. The present study highlights the potential role that GDPs can play in effective and efficient disaster management in India. Policy changes pertaining to health care delivery system and curriculum and training to effectively deal with public health emergencies are the need of the hour.

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