DEGREE OF FAMILY DISASTER PREPAREDNESS AND ASSOCIATION OF DEMOGRAPHIC CHARACTERISTICS OF ACTIVE CONSULTANTS OF A TERTIARY HOSPITAL FOR CHILDREN IN QUEZON CITY

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ABSTRACT

BACKGROUND: Increasing incidence of natural and man-made disasters emphasize the need to assess home disaster preparedness of pediatricians.

OBJECTIVES: To determine degree of family disaster preparedness and association of demographic characteristics of active consultants of a tertiary hospital for children in Quezon City.

METHODS: Cross-sectional study where participants were selected using purposive type of sampling. Fifty-eight active consultants for children answered a self-administered questionnaire on home disaster preparedness. Data was analyzed using SPSS version 24.0.

RESULTS: Total of 36 (62.06%) participants scored 70 and above, indicating family disaster preparedness. A total of 22 (37.94%) participants scored below 70, indicating lack of home disaster preparedness. The age of participants 35 to 40 (OR 108.57), 41 to 45 (OR 36.01), 51 to 55 (OR 11.4) and 56 to 60 (OR 17.93) are more likely to be family disaster ready (p value <0.05). Male participants were 7 times more likely to have higher overall family disaster preparedness.

CONCLUSIONS: This study has shown that 36 consultants in a tertiary hospital for children in Quezon City are prepared for home disasters. Males and younger population are the demographic characteristics associated with an increased degree of family disaster preparedness.

RECOMMENDATIONS: Basics of home disaster management should be included in continuing medical education of the hospital staff. Health education management system should encourage participation of hospital staff in disaster management programs. Bigger sample size of the pediatric society is recommended. Determine association of other demographic variables on home disaster preparedness. Address issues to overcome response bias.

INTRODUCTION

Natural and man-made disasters are unpredictable events that can cause loss of life or damage to properties.[1] The 2018 World Risk Report stated that the Philippines is the third most vulnerable country to disasters and one of the most susceptible countries for climate change.[2] The Philippines experiences 20 to 25 typhoons yearly, with 22 known active volcanoes and an 80% probability for

earthquakes.[3] Metro Manila is one of the largest urban agglomerations in the Philippines and in the world. In comparison to the impact of climate change, Metro Manila is at risk for tropical cyclones and flooding.[3] The risk of man-made disasters in Metro Manila is also high owing to increased population and environmental degradation.

The need for disaster preparedness strategy for Metro Manila and for the entire Philippines has been widely emphasized. Emergencies occur anytime, and it is important for every community, family and individual to be prepared for any disaster to prevent further destruction of the consequences of such events.The National Disaster Risk Reduction and Management Council (NDRRMC) a working group of various government, nongovernment, civil and private sector organizations is responsible for ensuring the protection and welfare of the people during emergencies.[5] Throughout the country, local DRRM offices were established to create a local risk reduction and management plan according to the framework of the NDRRMC covering 4 aspects including disaster preparedness, response, prevention and mitigation, and rehabilitation and recovery.The Department of Health (DOH) through the Health Emergency Management Bureau (HEMB) is tasked for coordinating, integrating, supervising and implementing disaster related functions involving health concerns.[14] The DOH - HEMB is focused on disaster preparedness and response. Hospitals are required by NDRRMC through the DOH to have disaster plans and to practice them at least twice a year. These plans include the hospital's response to mass casualty incidents and internal disaster .[5]

Every pediatrician has a vital role in disaster preparedness, including personal preparedness through anticipatory guidance to their families and roles in the hospital and communities.[6]Families view pediatricians as their expert resource, and most of them anticipate that pediatricians are knowledgeable in disaster preparedness. A well-educated and equipped pediatrician who can lead his/her family in all phases of disaster in their home can be of immense service. The literature showed limited information on family disaster preparedness among healthcare professionals specifically pediatricians. This study will be conducted to answer the research question: What is the degree of family disaster preparedness and association of demographic characteristics of active consultants of a tertiary hospital for children in Quezon City?

Disasters could be man-made or natural environmental hazards of catastrophic consequences. These devastating events can overcome a community's ability to cope, causing serious harm to people's safety, health, and welfare. The government and non-government organizations have come up with various disaster preparedness plans.

The communities have the most crucial role since the ability of each member to be ready in times of disasters is more significant in reducing the damaging consequences. However, the key to having

an effective medical response during these events is ensuring that the healthcare system is well prepared in advance. This includes ensuring health care providers are prepared, by supporting them to develop household and business continuity plans, and to participate in health emergency management planning.[1,6]

According to Doctors of BC Council on Health Promotion, the personal preparedness among physicians is an important role in disaster preparedness to guide and empower their patients. Pediatricians have multitude of roles in emergency preparedness. This roles is not limited to general pediatricians but also applies to pediatric medical subspecialists and pediatric surgical specialists.[17]

Gausche - Hill et.al. and Mohamed Gad-el-Hak stated that general pediatricians and subspecialists' involvement may range from giving advice to families and children to being subject-matter experts for preparedness and critical resources in their communities. To fulfill these roles, it is essential that all pediatricians become educated regarding emergency preparedness.[7,8]

Gold, et.al and the American Academy of Pediatrics stated that it is necessary for all pediatricians to: institute office and home disaster plans; participate in the community or hospital disaster plan, exercises, and drills; provide medical assistance via established disaster medical delivery systems; provide guidance to patients and their families; make every effort to work in concert with the lead organization coordinating disaster relief when volunteering to assist during or after a disaster; serve a key role in identifying sentinel cases of illness after a chemical, biological, or radiologic release and include mental health preparedness in facing disasters and its consequences and after effects especially in vulnerable subjects - children.[10,12]

Mortelman et.al used a six-content assessment tool to evaluate the knowledge, estimated risk and capability for disasters of emergency pediatricians in specialized tertiary centers. It showed that 35% had disaster training and 53% felt that disaster education should be part of the curriculum of all healthcare professionals. The self-estimated capability ranged from 1.8 out of ten to 7.6 out of ten. It is said that physicians in general are willing to learn and adapt a curriculum on disaster preparedness but actual readiness is really limited.[11]

Chen et. al. conducted a national survey among 976 randomly selected Family Physicians. The study showed that only a quarter of family physicians were confident to respond to a bioterrorist event. The author concluded that physicians in general need more training in bioterrorism and other types of disasters.[9]

This study aimed to determine the degree of family disaster preparedness among Active consultants of a Tertiary Hospital for Children in Quezon City. The results of the study will be of importance to the following:

- Department of Health –The results of the study will guide officials and technical staff of DOH in planning strategies and formulating specific activities to generate awareness on disaster planning in community and family level.

- Philippine Medical Association and Subspecialty Societies – The result of the study will assist the medical community to come up with a statement/guidelines for and among its members on home disaster preparedness.

- Health Professionals – The results of this studywill strengthen the role of health professionals (ie pediatricians) in home disaster preparedness; enable pediatricians to improve their knowledge and skills in emergency preparedness.

STUDY OBJECTIVES

General Objective:

To determine the degree of family disaster preparedness and association of demographic characteristics of active consultants of a tertiary hospital for children in Quezon City.

Specific Objectives

1. Determine the degree of family disaster preparedness of pediatricians in a Tertiary Hospital for Children in Quezon City as to Home Disaster Plan, Home Disaster Supplies Kit and Disaster Preparedness Information.

2. Determine the association of degree of family disaster preparedness of pediatricians and demographic characteristic as to the participants age, sex, PPS membership status, type of practice and number of family members.

METHODOLOGY

This is a cross-sectional study conducted in a tertiary government hospital for children. The study invited Pediatricians of a tertiary government hospital for children in Quezon City. The following criteria was used in selecting the participants:

1. Diplomate, Fellow, Emeritus Fellow of the Philippine Pediatric Society, Inc.

2. Active consultant of a Tertiary Government Hospital for Children in Quezon City

3. Voluntary written informed consent to participate in the research study

STUDY PROCEDURE

The research protocol was submitted to the Institutional Review Board and Ethics Committee (IRB – EC) for review and approval. Data collection commenced onceapproved by the IRB – EC. Given that consultants arrived at different point in time, purposive sampling technique was applied to select participants. The study was done by

having the consultants, as they arrive, as respondents of the study if they satisfy the inclusion criteria until the required number of samples was achieved. The research assistant supervised/administered the questionnaire. The participants answered a self-administered questionnaire on home disaster preparedness. The Total Readiness Rating Score was used to evaluate the answers of theparticipants.

The answers on the self-administered questionnaire were encoded in Microsoft excel. Data was analyzed using SPSS version 24.0. Figure 1 outlines the study procedure.

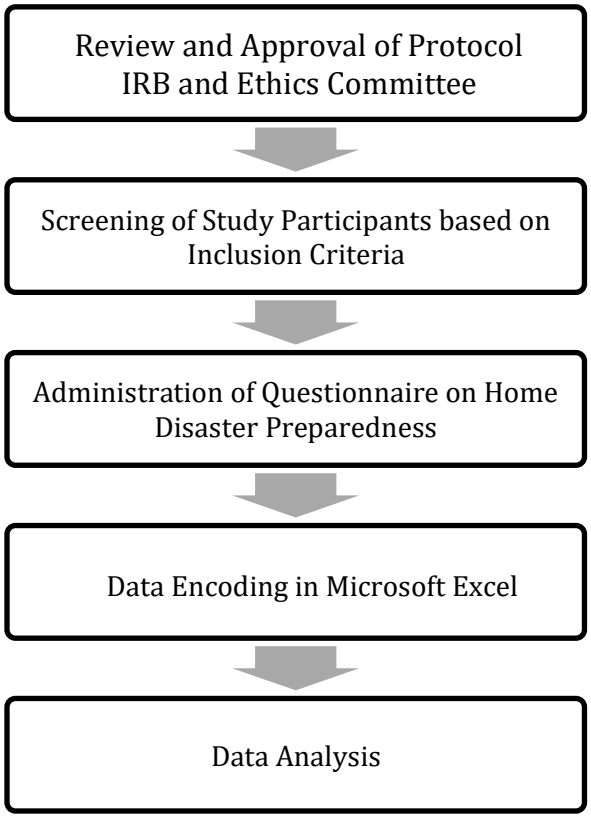

Figure 1. Study Procedure Flowchart

STUDY INSTRUMENT

The self-administered questionnaire was derived from Disaster Preparedness Event Too kit by The Philippine Pediatric Society, Committee on Accident Prevention, Disaster, Environmental Safety and Assistance. It is downloadable at www.redcross.org. Agunoy et al used the questionnaire in an earlier study. It was translated in Tagalog and validated by conducting a pre-test to 30 participants from the previous study.

The questionnaire is composed of four parts. The first part includes the demographics of the participants: age, sex, PPS member status, subspecialty and number of members in the family, The second part of the questionnaire includes three questions on home disaster plan: family's plan of a meeting place; identified an out of area phone contact and escape route in case of disaster. The third part of the questionnaire includes three questions on basic needs to put on the home disaster supplies kitthat comprised food, water, flashlight, batteries, radio, documents and materials for house pet. The fourth part of the questionnaire includes four questions on disaster information, it inquires on how well informed are the participants about disasters and its consequences. The total readiness rating score was used to evaluate the answers to the questions. The responses on the three domains were scored to determine the degree of disaster preparedness. The response to each item was given corresponding 10 points. A score of 90 to100 points is interpreted as excellent

readiness, a score of 80 points is interpreted as very good readiness, a score 70 points is interpreted as a solid foundation and a score of less than 70 points is interpreted as still more to do.

A total of 67 active consultants hold clinic in a Tertiary Hospital for Children in Quezon City. Samples were gathered using purposive sampling technique. Those consultants who met the inclusion criteria was considered until the required number of samples per type of practice was met (Table1).

Table 1: Frequency of Consultants and Sample Size Requirement per Type of Practice

Type of Practice	Total Number of Consultants per Type of Practice	Sample Size Requirement per Type of Practice
General Pediatrics	11	10
Adolescent Medicine	5	4
Cardiology	4	3
Clinical Genetics	1	1
Critical Care	4	3
Endocrinology	3	2
Gastroenterology	4	3
Hematology	6	5
Infectious Diseases	7	6
Neonatology	6	5
Nephrology	9	8
Neurology	1	1
Pulmonology	5	4
Total	67	55

Frequency, Percentage, Mean, Standard deviation, Median, and Interquartile Range were used to describe the demographic and clinical profile of the participants. Frequency and Percentage were used to determine the degree of family disaster preparedness of pediatricians in terms of home disaster plan, home disaster supplies kit, and disaster preparedness information in a Tertiary Hospital for Children in Quezon City. Ordinal logistic regression analysis was used to determine the association of degree of family disaster preparedness of pediatricians and demographic characteristic as age, sex, membership status, type of practice, and number of family members. SPSS version 24.0 was used for data analysis; Null hypothesis will be rejected at 0.05-alpha level of significance.

The research was guided by the Principles in the Declaration of Helsinki. The research protocol was submitted to the Institutional Review Board for review and approval. The principal investigator wrote a letter or request addressed to the Executive Director to conduct the study among pediatricians of the institution. The pediatricians were oriented in the nature, purpose and procedures of the study. The pediatricians were invited to participate in the study. Their approval in their involvement in the study was solicited. The informed consent process was conducted in English. Forms and questionnaires were coded. All information was secured. The members of the research team have completed the Good Clinical Practice training on the responsible conduct of research with human data. A trained

research assistant solicited the informed consent and administered the questionnaire. The structured research question was only administered once the informed consent was signed.

RESULTS

A total of 58 active consultants gave consent and completed the self-administered questionnaire. Table 2 outlines the socio-demographic profile of the study participants. Majority, fifty seven percent (57%) of the participants were51years old and above. There were more female (79.3%) consultants as compared with male (20.7%) consultants. Eighty five percent of the participants were fellows of the Philippine Pediatric Society (PPS). Majority, 24% of the consultants are General Pediatricians, 10% were Hematologists-Oncologists and 8.6% were Pulmonologists. Fifty percent of the participants have 5 or more family members.

Table 2: Frequency and Percentage Distribution of Sociodemographic Characteristics of the Participants

	N	Percentage
Age		
35-40	5	8.6%
41-45	11	19.0%
46-50	9	15.5%
51-55	12	20.7%
56-60	9	15.5%
60 and above	12	20.7%
Sex		
Male	12	20.7%
Female	46	79.3%
PPS Member Status		
Diplomate	9	15.5%
Fellow	49	84.5%
Emeritus Fellow	0	0.0%
Type of Practice		
General Pediatrics	14	24.1%
Adolescent Medicine	4	6.9%
Cardiology	4	6.9%
Genetics	1	1.7%
Critical Care	4	6.9%
Endocrinology	2	3.4%
Gastroenterology	2	3.4%
Hematology-Oncology	6	10.3%
Infectious Disease	4	6.9%
Neonatology	3	5.2%
Nephrology	5	8.6%
Neurology	4	6.9%
Pulmonology	5	8.6%
Number of FamilyMembers		
0-2	9	15.5%
3-4	20	34.5%
5 or more	29	50.0%

Analysis of pediatricians' home disaster plan showed that 31 (53.4%) have identified two places to meet after a disaster. The results showed that 12 (20.7%) of the participants have identified an out-of-area phone contact. Majority, 42 (72.4%) have identified escape routes out of their homes. Assessment of the pediatricians having a home disasters' supply kit showed that 26 (44.8%) have 3-day supply of food, water

and special items. There were 52 (89.7%) participants who verbalized to have flashlight, battery-powered radio and extra batteries. Forty-three (74.1%) affirmed to have a well stock first-aid kit. Inquiry on what to do in a disaster demonstrated that 52 (89.7%) of the participants know what type of disaster may occur in their area. Fifty-two (89.7%) of the participants learned the various methods to stay informed during a disaster. Fifty-one (87.9%) participants learned what to do in case of an earthquake and to evacuate safely or signal for help in case of fire. There were 46 (79.3%) participants who are certified in first aid and CPR. (Table 3)

Table 3: Frequency and Percentage Distribution of Family Disaster Preparedness of Pediatricians in terms of Home Disaster Plan, Home Disaster Supplies Kit, and Disaster Preparedness Information

	N	Percentage
Creating a Home Disaster Plan		
1. My family and I have identified two places to meet after a disaster.	31	53.4%
2. My family and I have identified an out-of-area phone contact.	12	20.7%
3. My family and I have identified escape routes out of our home.	42	72.4%
Developing a Home Disaster Supplies Kit		
1. I have a 3-day supply of food, water and special items	26	44.8%
2. I have a flashlight, battery-powered radio, and extra batteries.	52	89.7%
3. I have a well-stocked first aid kit	43	74.1%
Being Informed about what to do in a Disaster		
1. I have learned what disasters may occur in my area and how they might affect me and my loved ones.	52	89.7%
2. I have learned the various methods used to stay informed during a disaster.	52	89.7%
3. I have learned how to drop, cover and hold in case of an earthquake, to shelter-in-place if needed, and evacuate safely or signal for help if I am unable to exit in case of fire.	51	87.9%
4. I am currently certified in first aid and CPR.	46	79.3%

Analysis of the pediatricians' degree of home disaster preparedness showed that 12 (20.68%) have excellent readiness. There were 14 (24.13%) who have very good readiness and 10 (17.2%) have good readiness in home disasters. A total of 22 (37%) participants still have more to do to prepare for home disasters. Classification of the participants' disaster preparedness score demonstrated that 36 (62.06%) scored 70 and above which indicated family disaster preparedness. A total of 22 (37.94%) participants scored below 70, which indicated that they are not prepared in home

disasters. Analysis of family disaster preparedness of participants as to creating home disaster plan, developing home disasters' supplies kit and disaster preparedness information showed no association with demographic characteristics as age, sex, membership status, type of practice and number of family members.

Further analysis was done to determine the association of degree of overall family disaster preparedness and demographic characteristics as age, sex, membership status, type of practice and number of family members. The results revealed that the following age of participants 35 to 40 years old (OR 108.57), 41 to 45 years old (OR36.01), 51 to 55 years

old (OR 11.4) and 56 to 60 years old(OR 17.93)are more likely to be family disaster ready (p value <0.05) as compared to participants 60 years old and above.Study on the association of sex and overall home disaster preparedness showed that male participants were 7 times more likely to have higher overall family disaster preparedness compared to female participants. The results further revealed that PPS membership status, type of practice, and number of family members arenot associated with the overall degree of family disaster preparedness of the participants. (Table 4)

Table 4: The Association of Degree of Overall Family Disaster Preparedness Of Pediatricians And Demographic Characteristics

	Overall				**OR (95% CI)**	**P-value**
	Excellent	**Very Good**	**Solid Foundation**	**Still more to do**		
Age						
35-40	1 (8.3%)	3 (21.4%)	0 (0%)	1 (4.5%)	108.57 (3.28 - 3596.28)	0.009
41-45	3 (25%)	4 (28.6%)	1 (10%)	2 (9.1%)	36.01 (3.75 - 345.43)	0.002
46-50	2 (16.7%)	0(0%)	3 (30%)	5 (22.7%)	6.67 (0.75 - 59.34)	0.089
51-55	1 (8.3%)	5 (35.7%)	3 (30%)	3 (13.6%)	11.4 (1.33 - 98.14)	0.027
56-60	4 (33.3%)	1 (7.1%)	0 (0%)	4 (18.2%)	17.93 (2.06 - 155.71)	0.009
60 and above	1 (8.3%)	1 (7.1%)	3 (30%)	7 (31.8%)	0a	
Sex						
Male	10 (83.3%)	9 (64.3%)	8 (80%)	19 (86.4%)	7.48 (1.24 - 45.18)	0.028
Female	2 (16.7%)	5 (35.7%)	2 (20%)	3(13.6%)	0a	
PPS Member Status						
Diplomate	1 (8.3%)	5 (35.7%)	2(20%)	3 (13.6%)	4.71 (0.49 - 45)	0.178
Fellow	11 (91.7%)	9 (64.3%)	8 (80%)	19 (86.4%)	0a	

Emeritus Fellow						
Type of Practice						
Cardiology	0 (0%)	3 (21.4%)	0 (0%)	1 (4.5%)	4.9 (0.32 - 74.73)	0.253
Critical Care	1 (8.3%)	1 (7.1%)	1 (10%)	1 (4.5%)	1.57 (0.09 - 25.94)	0.753
Gastroeneterology	0 (0%)	1 (7.1%)	0 (0%)	1 (4.5%)	2.77 (0.16 - 48.13)	0.484
General Pediatrics	5 (41.7%)	3 (21.4%)	2 (20%)	4 (18.2%)	13.39 (0.28 - 636.95)	0.188
Genetics	0 (0%)	0 (0%)	0 (0%)	1 (4.5%)	3.1 (0.11 - 84.95)	0.502
Adolescent Medicine	1 (8.3%)	1 (7.1%)	2 (20%)	0 (0%)	8.15 (0.66 - 100.26)	0.101
Endorcrinology	1 (8.3%)	1 (7.1%)	0 (0%)	0 (0%)	0 (0 - 0)	
Hematology-Oncology	1 (8.3%)	1 (7.1%)	0 (0%)	4 (18.2%)	0.88 (0.06 - 13.46)	0.928
Infectious Disease	0 (0%)	1 (7.1%)	0 (0%)	3 (13.6%)	0.31 (0.02 - 6.35)	0.446
Neonatology	0 (0%)	0 (0%)	1 (10%)	2 (9.1%)	1.15 (0.04 - 36.74)	0.937
Nephrology	1 (8.3%)	1 (7.1%)	0 (0%)	3 (13.6%)	1.35 (0.07 - 27.38)	0.846
Neurology	1 (8.3%)	0 (0%)	3 (30%)	0 (0%)	6.6 (0.41 - 106.48)	0.184
Pulmonology	1 (8.3%)	1 (7.1%)	1 (10%)	2 (9.1%)	0a	
Number of Family Members						
0-2	2 (16.7%)	2 (14.3%)	0 (0%)	5 (22.7%)	0.58 (0.11 - 3.08)	0.526
3-4	4 (33.3%)	3 (21.4%)	6 (60%)	6 (27.3%)	0.89 (0.2 - 3.88)	0.878
5 or more	6 (50%)	9 (64.3%)	4 (40%)	11 (50%)		

DISCUSSION

The rising number of natural and man-made disasters around the world and specifically in the Philippines, the need for disaster preparedness is emphasized. Studies suggested that in disaster preparedness, pediatricians have a vital role in disaster preparedness as children are considered one of the most vulnerable population comprising 20% of the community.[11,15]This study revealed that the selected physicians in a tertiary hospital in Quezon City are generally prepared in terms of creating a home disaster plan, building a disaster supplies kit and being informed on what to do in a disaster.

Government efforts to increase awareness on disasters and programs on disaster preparedness in the hospital and community setting have contributed to the results of the present study. The increasing number and severity of natural and man-made disasters in the recent years have made the general population more vigilant in disaster preparedness. The development of newer information technology and its accessibility, have greatly educated the general population on basic information on disasters. These factors have led to the increased disaster preparedness of our participants.[16]

The results of this study are in contrast with that of Mortelman, et. al. and Chen et.

al, which showed that most physicians are under prepared for disasters and need to undergo specific training in pediatric disasters.[9, 11] Mortelman et al. conducted a six-content assessment tool to evaluate the knowledge, estimated risk and capability for disasters of emergency pediatricians in specialized tertiary centers. The results showed that 95% of respondents anticipated receiving pediatric patients after a mass casualty event; only half of the respondents had specific emphasis on the pediatric patient as part of their disaster plan.[11]

Analysis of the different demographic characteristics and degree of disaster preparedness showed an association with age and sex. Being a male pediatrician, with age of less than 60 is associated with increased degree of home disaster preparedness. This is affirmed in the study of Makama et.al, which showed an association between male, ages 46 to 50 years old and increased home disaster preparedness. [18] This is in contrast to the study by Najafi, et.al, which stated that gender is not associated with degree of home disaster preparedness. Other factors associated with home disaster preparedness are monthly income, previous disaster experience, residential district and occupation (physicians). [19]

Men as head of the family have a greater responsibility both within their households and as volunteers and rescue workers in their community. Younger population plays various roles in disaster preparedness. They are flexible and can easily adapt to situations. As such, they can guide the community in their risks and protective factors or may hold leadership within programs on disaster preparedness. The youth can also act as medium to disperse information on home disaster preparedness and act as change makers. With a higher access to technology and media exposure, the younger population can come up with resourceful plans to disaster preparedness efforts.

Children and adults, ages 60 and above are the most vulnerable during and after disasters. Older adults are more likely than others in a community to be socially isolated. They have multiple chronic conditions, limitations in daily activities, declining vision, hearing, physical and cognitive disabilities that can hamper their ability to communicate about, prepare for, and respond to a natural disaster deeming them less prepared for it.

The present study revealed that there is no association between PPS membership status and number of family members, type of practice and home disaster preparedness. This is similar to the result of the study by Najafi et.al, which concluded that there is no association between number of household members and degree of home disaster preparedness.[19]

This study is limited to the active staff of a tertiary pediatric hospital in Quezon City. The result is not reflective of the home disaster preparedness of the membership of the specialty society. This is a survey type of study that could be associated with factors that can influence response.

CONCLUSIONS AND RECOMMENDATIONS

This study concluded that 62% of the consultants in a tertiary hospital for children in Quezon City are generally prepared for home disasters in terms of creating a home disaster plan, building a disaster supplies kit and being informed on what to do in a disaster. Gender and age are the demographic characteristics associated with an increased degree of family disaster preparedness. PPS membership status, type of practice and number of family members were not significant factors.

It is recommended that basics of home disaster management should be included in the continuing medical education of the hospital staff. The health education management system should encourage participation of hospital staff in disaster management programs and activities. The researcher recommends that for future study a bigger sample size involving a representative sample of the general membership of the pediatric society. Determine association of other demographic variables such as monthly income, previous disaster experience and residential district on home disaster preparedness. Address issues to overcome response bias.

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