

Research Article

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Medical Advice Through Mobil Phone During the COVID-19 Pandemia, June - July 2020 at Nicaragua

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ABSTRACT

In December 2019 an outbreak of pneumonia of unknown etiology emerged in Wuhan, China. World Health Organization named coronavirus disease 2019 (COVID-19) several health platforms have used the mobil phone as tool in different aspects and situations, the pandemia one of these. The golds this study is collection of epidemiological data and to ease medical advice using mobil phone during the pandemic by COVID-19 at Nicaragua. Method: Descriptive study, cohort. We reviewed the file of 5,712 phone call, during two months, using Interactive Voice Response (IVR) service to provide medical advice. Physicians trained with knowledge about COVID 19 according to WHO- PHO and John Hopkins University's courses. Data collection realized with a format: call number, call duration, demographic data, symptoms, question about COVID 19, medical advice. The Information proceed using Excel office 2010, the univariable review realized with frequency and percentages. Results: During two months (June and July 2020) we received 5712 mobil phone call. The distribution for departments: 4264 (75%) correspondent to Managua, fallow of Masaya 336 (6%) Chinandega 220 (4%), Granada and León (3%) each one, the others minor to 1%. The female represented 3311(58%) and men 2401(42%) according who made the phone call. The distribution according age : 4035(70.6%) major of 30 years and 1677(29.4%) minor to 30 years Each day the ranges of mobil phone call were 110-120 , average 115 for day. Duration call 5-10 minutes, average was 8 minutes. The symptoms reported were: loss of smell and taste 53-52% respectively fallow of myalgia and fever. The medical advice relationship with the most frequent question about: Symptoms, medical treatment, frequent complications, family protection and mask use. Conclusion: Ours results as the international reports show the greatest utility to epidemiological data collection during a health emergency principally in vulnerable peoples and know a part of the behavior of disease in our country. Also have permitted to ease medical advice by health workers trained on the subject.

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Received: August 12, 2020; **Accepted:** August 31, 2020; **Published:** September 04, 2020

Keywords: COVID 19, Mobil Cell Phone, Medical Advice.

Introduction

In December 2019, an increasing number of cases of patients with pneumonia of unknown etiology emerged in Wuhan, China. SARS-CoV-2 its infectious diseases was named coronavirus disease 2019 (COVID-19) by the World Health Organization (WHO). Near 100 countries with more than 60 000 international cases to March 2020. The first confirmed case of coronavirus disease (COVID-19) in Nicaragua was reported March 2020. Nicaragua made up of 15 departments and two autonomous regions. Nicaragua is part of undeveloped countries with low incomes [1-6]. Due to technological development of last decade, several health care platforms have surged as new tools to provide healthcare, (mHealth, eHealth) principally vulnerable people as low incomes countries. Understanding that the objective is to

improve the coordination and delivery of services in the health sector, with a view to increasing efficiency, availability, access, and affordability, thus making it possible for the sector to make adjustments and anticipate new contexts in the field of health. In such a way that give priority to the use of innovative information and communication technology tools and methodologies, with a view to improving human and veterinary public health in the region including public health administration. Some elements used by various health care platforms, the mobil phone has played a great role in different aspects: data collection, medical advice, family planning, health survey etc. very useful in different situations: nature disaster, epidemics, pandemics, health information to far areas [7-9]. The golds this study is collection of epidemiological data and to ease medical advice between vulnerable people and medical doctor using mobil phone during the pandemic by COVID-19 at Nicaragua.

Method

Descriptive study, cohort. We have reviewed the file records of 5,712 mobil phone call, during period two months (June and July 2020). Interactive Voice Response (IVR) service, using mobile phone as established by Derenzi and Borriello. This service was to provide medical advice to vulnerable people at moment of the COVID 19 pandemia at Nicaragua. Privacy, convenience, and access-hallmarks of mobile phones service. The mobil phone call service was widely promoted via social media, newspaper and radio. Physicians was trained with knowledge about COVID 19 according to WHO- PHO and John Hopkins University's courses. Four phone line to disposition, seventh day for weak for two months, twelve hours each day, only one phone line on air each day. Data collection was realized with established format that contain: call number, call duration, demographic data, symptoms, question about COVID 19 more frequent and medical advice. The COVID19 symptoms reported as Richardson et al. The Information was proceed using Excel office 2010, the univariable review was realized with frequency and percentages [10-12].

Results

We received 5712 mobil phone call. The distribution according to department as show figure 1. Demographic aspect relationships who made the call graphics 1-2-3. A total of 655 (25%) patients presented comorbidities (hypertension and diabetes). Each day the ranges of mobil phone call was 110-120 , average 115 for day. Duration call 5-10 minutes, average was 8 minutes. The symptoms was describe mild and moderate symptoms. Graphics 4. Medical advice to more frequent question according table 2.

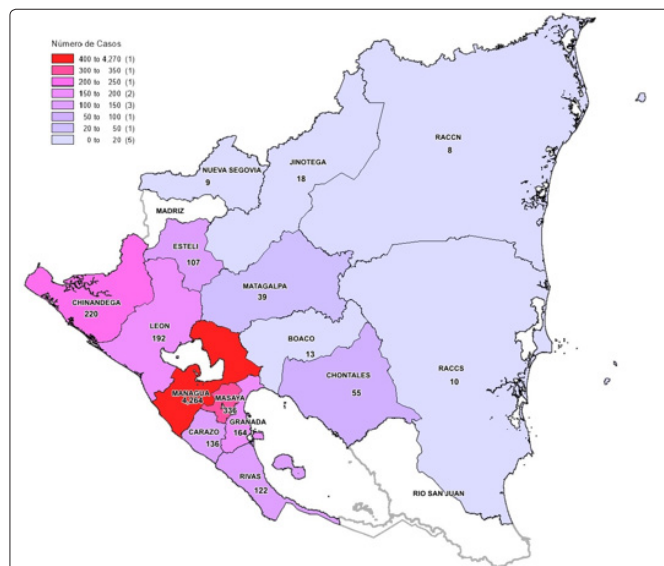


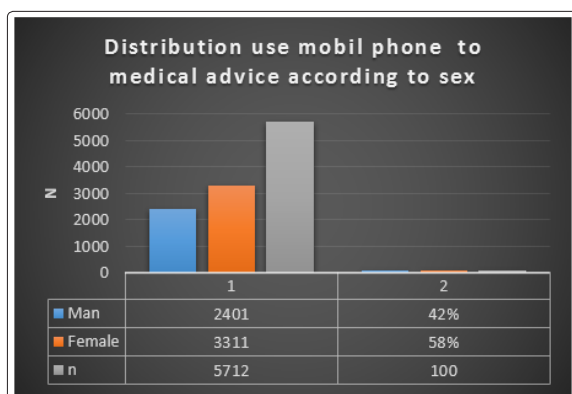
Figure 1: Geographic Distribution by Departments, Medical Advice Service through Mobil Phone Call during COVID19 Pandemia at Nicaragua

Table 1: Format to Demographic and Mobil Phone Call Data Collection during Service Medical Advice for COVID 19 Pandemia at Nicaragua

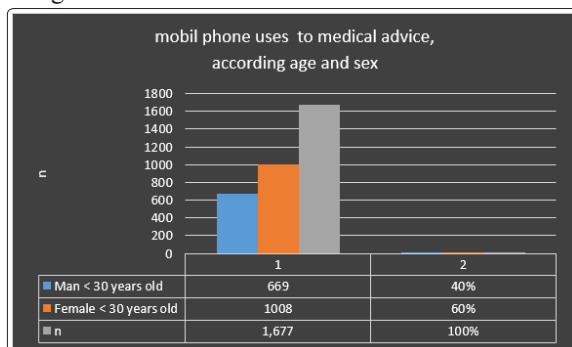
# call/day	Female	< 30 years old	> 30 years old	Departament	Call duration/ minutes
1					
2					
3					
4					

Table 2: Questions More Frequent During Medical Advice Trough Mobil Phone Call for COVID 19 at Nicaragua

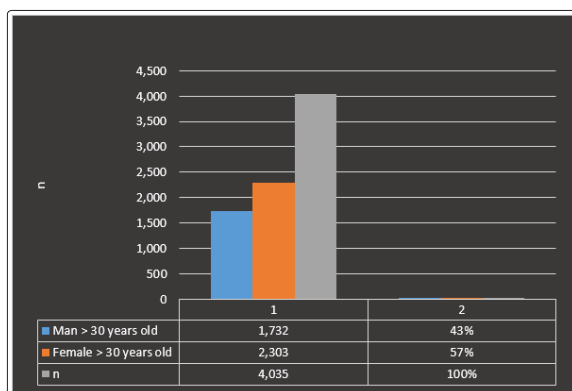
Columna1	Columna2
Questions more frequent	Medical advice according WHO/PHAO
Principal symptoms COVID 19	https://openwho.org/courses/seve-re-acute-respiratory-infection
Frequent Complication	https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected ,
Medical treatment	https://openwho.org/courses/seve-re-acute-respiratory-infection
Family protection with one member sick	https://www.who.int/es/emergencies/diseases/novel-coronavirus-2019/advice-for-public https://apps.who.int/iris/bitstream/handle/10665/331397/WHO-nCov-IPC-HomeCare-2020.2-spa.pdf
Measures of isolation to sick	https://www.who.int/es/emergencies/diseases/novel-coronavirus-2019/advice-for-public
Time to get out of isolation	https://www.who.int/es/emergencies/diseases/novel-coronavirus-2019/advice-for-public
Time to transmission disease	https://openwho.org/courses/SARI-facilities
Possibility to reinfection	https://openwho.org/courses/eproteccion-infecciones-respiratorias-aguda
Adverse drugs reactions	https://openwho.org/courses/seve-re-acute-respiratory-infection/WHO-Clinical-Management-of-COVID-19-Interim-guidance-May-2020
Comorbidities diseases/ COVID 19	https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected
Pregnant and COVID 19	WHO-Clinical Management of COVID 19-Interim guidance May 2020
Use of a mask to prevent COVID 19	https://apps.who.int/iris/bitstream/handle/10665/330999/WHO-nCov-IPC-Masks-2020.1-spa.pdf
washing hands frequent	https://apps.who.int/iris/bitstream/handle/10665/330685/9789240001114-spa.pdf
Household disinfection measures	https://www.who.int/es/emergencies/diseases/novel-coronavirus-2019/advice-for-public https://apps.who.int/iris/bitstream/handle/10665/331397/WHO-nCov-IPC-HomeCare-2020.2-spa.pdf
Household disinfection measures for death	PHAO Corpse management COVID 19-April 2020 https://apps.who.int/iris/bitstream/handle/10665/331397/WHO-nCov-IPC-HomeCare-2020.2-spa.pdf
Corpse preparation for COVID	PHAO Corpse management COVID 19-April 2020
Time to bury the corpse	PHAO Corpse management COVID 19-April 2020
Prophylactic treatment of those exposed	https://www.who.int/es/emergencies/diseases/novel-coronavirus-2019/advice-for-public



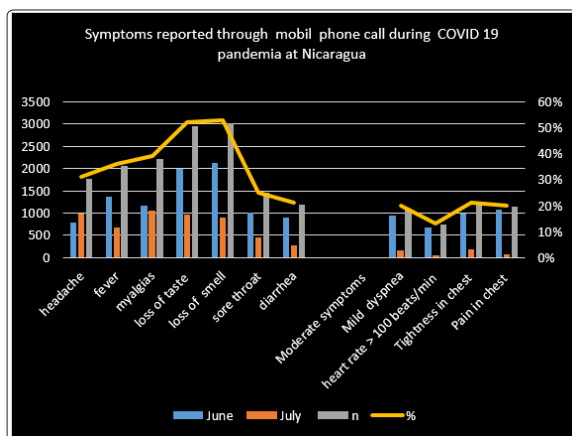
Graphic 1: Distribution Use Mobil Phone to Medical Advice According to Sex



Graphic 2: Mobil Phone Uses to Medical Advice, According Age and Sex



Graphic 3: Mobil Phone Uses to Medical Advice, According Age and Sex



Graphics 4: Symptoms Reported Through Mobil Phone Call during COVID 19 Pandemia at Nicaragua

Discussion

In December 2019, a cluster of patients with pneumonia of unknown cause was linked to a seafood wholesale market in Wuhan, China. Human airway epithelial cells were used to isolate a novel coronavirus, named 2019-nCoV, this is the seventh member of the family of coronaviruses that infect humans. With its rapid spread, the virus has extended to most parts of China and whole world, a really pandemia according World Health Organization (WHO). The develop of several health strategic have been used during health emergency with the gold to reduce the impact of them in vulnerable people and risk groups. Due to the technology growth and the increasingly access have permitted carry out successful health plans. Globally, more than 93% of the world's population is covered by mobile phone networks, and more than 87% of people living in the developing world are mobile phone subscribers [13-16]. The PHAO made a resolution about strategy and plans of action about of the use of innovative information and communication technology tools and methodologies, with a view to improving human health [8]. Several health platform arose using this technology as a great tools in health field. The rapid proliferation of mHealth projects generated considerable enthusiasm among governments, donors, and implementers of health programs. mHealth projects employ 1 or more mobile phone functions-such as short message service (SMS), interactive voice response (IVR)-to accomplish the common applications. Electronic decision support tools also can be used to identify and prioritize high-risk people for health care, targeting interventions in resource- limited contexts.

There are lots research realized principally at low income countries taken advantage mobil phone technology to implement various programs in health field [17-20]. We have taken as example this papers considering theirs successful results to implement a quick stratagem facing the COVID19 pandemic at Nicaragua. Total of incoming calls represent minor of 1% of Nicaragua's people, but the majority of this call were made of the urban area with highest population density (Managua-capital). While it is true, the development of the telecommunications in the health field has broken various barriers as the distance, transport trouble, greater family coverage, date collection, statistics report, sexual education, etc. however have arisen new problems that limit effective access to these benefits as network connectivity, access to electricity, system integration and usability of the device, and concerns about data confidentiality, the cost of call. On the other hand, the cost to enable available phone, available hours to phone line, number of available phone line, the trainer of health workers, are some aspects that influence the number of call. Lee and Chang reported theirs expertise at Korea [21-23].

The results allow to evaluate the geographic distribution of the COVID 19 pandemia at Nicaragua, affecting most of the national territory. Common behavior of the classic spread of viral infection in different urban communities as reported by the international literature. The asymptomatic patients play a great role to spread disease [24,25]. The woman were the majority that used the mobil phone call services. The international literature report that the man are most affected for COVID 19 but there are not significant difference between both [12,26]. The age groups most affected were the major to 30 years old, correlation with Nicaragüense young people but with comorbidities similar to published by international literature. The loss of smell and taste plus mialgias were the most frequent symptoms more than half patients as reported by Spinato and Fabbri. There are a number of personal digital assistants (PDA) and phone-based systems that have been developed to improve data collection and decision support in low

and mild income countries. Recent advances in mobile phone capabilities are making many innovative data-collection strategies possible. Mobile phone – based applications have been used in a wide variety of surveillance activities for example: include gathering data on respiratory illness [27-31]. This research have permitted use as model during COVID19 pandemia at Nicaragua. Ours results provide very important epidemiological data on behavior of disease but also, allowed to know the most frequent question and provide medical advice, according the world health organizations as show in ours paper.

Conclusion

The technology development in the communication field, have become a new tools in the health area. Ours results as the international report show the greatest utility to epidemiological data collection during a health emergency principally in vulnerable peoples and know a part of the behavior of disease in ours country. Also have permitted to ease medical advice by health workers with excellent trained on the subject with unique purpose of to prevent, to advice, to help to descend the impact of COVID 19 pandemia at Nicaragua.

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