SARS-COV-2 INFLUENCE ON THE GENERAL PRACTICE IN NORTH MACEDONIA: VIEWPOINTS OF THE GENERAL POPULATION AND PRACTITIONERS

Viktor Denkovski
School of Computer Science and Information Technology University American College Skopje, R.N. Macedonia
viktor.denkovski@uacs.edu.mk

Goce Gavrilov
School of Computer Science and Information Technology University American College Skopje, R.N. Macedonia
goce.gavrilov@uacs.edu.mk

ABSTRACT: During pandemic times, like the SARS-CoV-2 outbreak, the chance of spreading the virus in the community and the individual health risk of the population especially for chronic patients is imminent. The dramatic increase of Covid-19 cases and the various health measures issued by the governments as lockdowns, curfews, gathering limitations, etc. led to changes in the way of life and had a tremendous effect on the mental health of the population. Furthermore, it raised the awareness of the population concerning their health risk while visiting the physicians, which additionally had an impact on the general practice as the first line of defense. **Aim:** The aim of this study is to investigate the views and expectations of the population concerning some of these issues. **Methodology:** Questionnaires were distributed at the peak of the Coronavirus outbreak (June to August 2020) in R.N. Macedonia. One survey was emailed to 2200 individual general practitioners and one was distributed randomly via emails and social networks for the public, which included participants above 15 years of age. SPSS statistical software was used to analyze the gathered data. **Findings:** Findings indicate that participants showed increased concerns about their safety and health risks in comparison to the time before the pandemic when visiting the general practitioner. Additionally, the general practitioners revealed increased concerns about their own and the patients' safety in their medical facilities during the outbreak. **Contribution:** Governments and public health authorities should consider these findings, use them as a reference, and carefully see how all of this is influencing the population before issuing additional restrictions and regulations in which the general practice is affected during pandemics.

KEYWORDS: *SARS-CoV-2, general practice, patients, general practitioner, health risks, COVID-19 case*

INTRODUCTION

Healthcare is an area that constantly changing landscape since many factors lead to continuously increased demand for general practice services. General practice and general practitioners have a central role in every healthcare system. General practice is usually referred to the general practitioner and other personnel and is therefore synonymous with primary care and family medicine and it's is a term that is usually referred to the general practitioner (WHO, 2004). When we talk about a general practitioner it means to describe the concept and model around the most critical link in primary healthcare: the general practitioner or primary care physician. General practice is synonymous with primary care and family medicine and usually referred to the general practitioner and other personnel (WHO, 2004). There exists a link in primary healthcare between the general practitioner or primary care physician, while the notion of family medicine originally encompassed the mode of a team approach.

As reported by Gaede (2020), the primary health care (PHC) approach had started with the Declaration of Alma Ata in 1978. Since this year it is strongly advocated internationally continuing to shape many healthcare systems worldwide (Healthwatch, 2015). Primary health physicians' roles and functions and for all categories of healthcare professionals vary greatly. They have been shaped by history and traditions, resource availability, and national and local policies that shape the healthcare system (Gaede, 2020).

Because of the aging population and reductions in the general practitioner (GP) workforce, doctors from general practices have been facing ongoing workload pressures stemming. As a result of this, patients have been experiencing decreased access to primary care services, leading to high levels of dissatisfaction (Healthwatch, 2015; Robertson, 2018; Wellings and Baird, 2017). The recent technologies' development affects all parts of human life also it is changing the way of using and perceived things.

Some risk factors related to occupation like physical and mental stress from work shifts, overtime, providing medical care under specific conditions etc. expose them to high-risk behavior (Sovova et al., 2014; Giannis et al. 2019).

Wang et al. (2017) in their researches have confirmed several risk factors including the satisfaction of income, work experience in psychiatric/ psychological departments, rehabilitation of patients, contact quality, and the attitude of mass media. Demographic factors, the rest of work-related factors, and contact frequency might not be related to primary healthcare workers' attitudes towards psychiatric patients. But the situation and opinion are changed after the beginning of the SARS-CoV-2 crises.

As Ansell et al. (2017) pointed out that patients are facing more health problems while waiting to be received by the health workers, Giannis et al. (2019) added that the medical staff is further exposed to possible transference of diseases when in close contacts between themselves and patients.

The rapid development of information and communication technologies, together with recent and current COVID 19 pandemics, pose new opportunities and challenges in the development of the healthcare sector. This is especially important for the doctors from general practices as the first defense line of healthcare protection.

As such, the aim of this study is to explore the viewpoints and expectations of the population in regards to some of these issues.

MATERIALS AND METHODS

Two questionnaires were distributed on the viewpoints and satisfaction of the population (one for medical consumers and one for general practitioners) on the subject of introducing e-appointment system at general practitioners especially during pandemic times in R.N. Macedonia. However, there were Linkert Scale questions that can be associated to the topic at hand and for this study purposes only mutual questions from the questionnaires were considered.

STUDY POPULATION

Due to the safety measures issued by the government and the health authorities, most of the participants were placed in home lockdown. As such, the two questionnaires were distributed in the period from June to August in 2020 electronically via emails and social networks.

According to the code list of doctors from the primary health care institution by the Health of Insurance Fund (HIF) of R.N. Macedonia (2021) from a registered population (general medicine, dentistry, and gynecology) of 2.967, at least 341 participants were required to fill in the questionnaire with a set confidence level of 95 per cent and margin of error of 5 per cent.

Participants above 15 years of age were prompt for participation in the study and according to the latest census of population, households and dwellings in the Republic of Macedonia (2002) - Book XIII from the State statistical office of Republic of North Macedonia, 1.381.252 were recorded in that category. With a confidence level of 95 per cent and 5 per cent margin of error, 385 participants were required for this study purposes.

STATISTICAL ANALYSIS

The gathered responds from the questionnaires were integrated and analyzed in a statistical software program for Windows operating system by IBM, SPSS Statistics, v.23.0. The categorical variables were introduced as frequencies and percentages. To search for any significant correlation between the variables, a cross-tabulation was performed. Chi-Square and Phi and Cramer's V was used for the correlation test and to measure the size of the effect between the variables, respectively. For significance, a P value < 0,05 two-tailed was considered. For the defined null hypothesis, it was assumed that the variables are independent from one another.

RESULTS

Concerning the general practitioners and having in mind their increased workload during the pandemic, 2200 individual email invites were sent of which 363 participants responded to the questionnaire estimating a response rate of 16,5 per cent.

Concerning the medical consumers, by distributing the questionnaire randomly via emails and social networks, 478 participants responded to the questionnaire during the mentioned period above.

As such, with a set confidence level of 95 per cent, a total number of 841 participants were involved in this study from the given population in the presented period leading to estimated margin of error of 3,38 per cent.

As presented in Figure 3.1, the majority of participants were between the age of 19 and 35 years, and 36 and 50 years. This indicates that most of the studied population (69,98 per cent) belongs to the proper adult and work efficient age group.

Figure 3.1.
Age group distribution of the participants

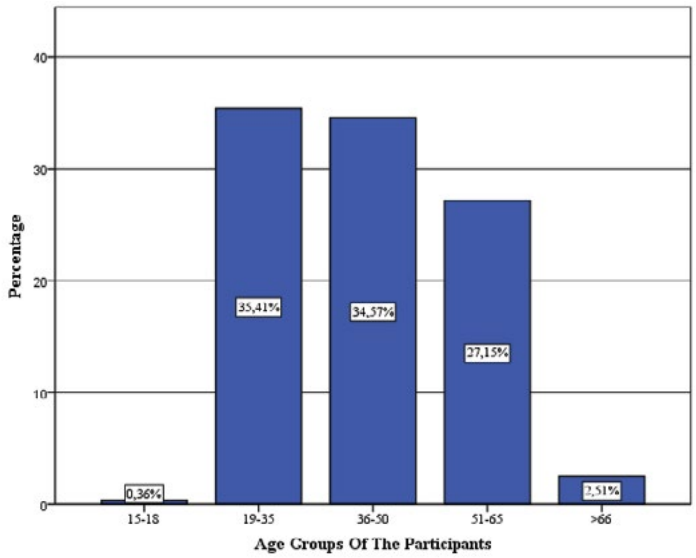

Figure 3.2.
Most common visitation reason at the general practitioner

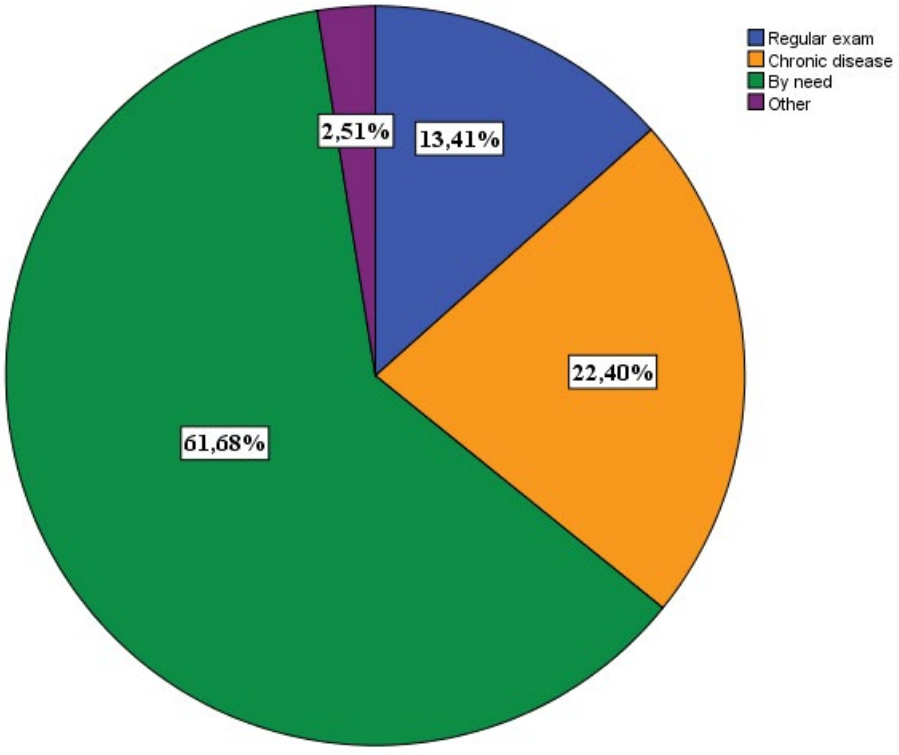

Table 3.1.

Participants' basic demographic characteristics

Demographic Characteristics	N	%
Participant Type		
Medical Consumer	478	56,8
General Practitioner	363	43,2
Gender		
Male	238	28,5
Female	597	71,5
Current Residence		
Urban residence	760	91,5
Rural residence	71	8,5

Table 3.2.

Views concerning MF condition during visitations

Participant's opinions	N	%
Most frequent time of day visitation (24h)		
08:00-12:00	502	60,0
12:00-16:00	123	14,7
16:00-20:00	180	21,5
Other	32	3,8
Congestion in MF		
Strongly agree	308	36,8
Agree	160	19,1
Neither agree nor disagree	224	26,7
Disagree	88	10,5
Strongly disagree	58	6,9
Exposed to health risks in waiting rooms		
Strongly agree	362	43,2
Agree	113	13,5
Neither agree nor disagree	176	21,0
Disagree	95	11,3
Strongly disagree	92	11,0

The basic demographic characteristics of the participants are presented in Table 3.1. As such, the majority of the participants that took part in this study were females (71,5 per cent) and the majority of participants lived in an urban residence (91,5 per cent).

The majority of participants visit their general practitioner by need (61,68 per cent), as shown in Figure 3.2.

Table 3.2. presents the views of the participants on the situations in the medical facilities (MF) during their visitations. The majority of participants most frequently visit their general practitioner between 08:00 and 12:00 hours (60,0 per cent). Additionally, most of the participants agree that there is congestion in the waiting rooms during their visitations (55,9 per cent) and thought that their health was at risk while waiting to be accepted by the physician (56,7 per cent).

As any information system implementation, it comes with certain advantages (saving time, reduce congestion, improving patient care, wait time reduction, insurance of a free time slot for examination, easier for patient follow ups for chronic patients, improve the general practitioner services, provide fast and easy consultations, and important for health care) and disadvantages (reduced flexibility of the general practitioners, no show appointments, and patients coming in late on their appointment). As such, the participants' express their opinion on these advantages and disadvantages and if the e-appointment system at general practitioners would improve the results during the pandemic (Figure 3.3)? The majority of the participants agreed that with the implementation of e-appointments in general practice the results for the advantages and disadvantages would be improved (59,1 per cent).

Figure 3.3.

Participants' opinion on improving results at the general practitioner with e-appointment system

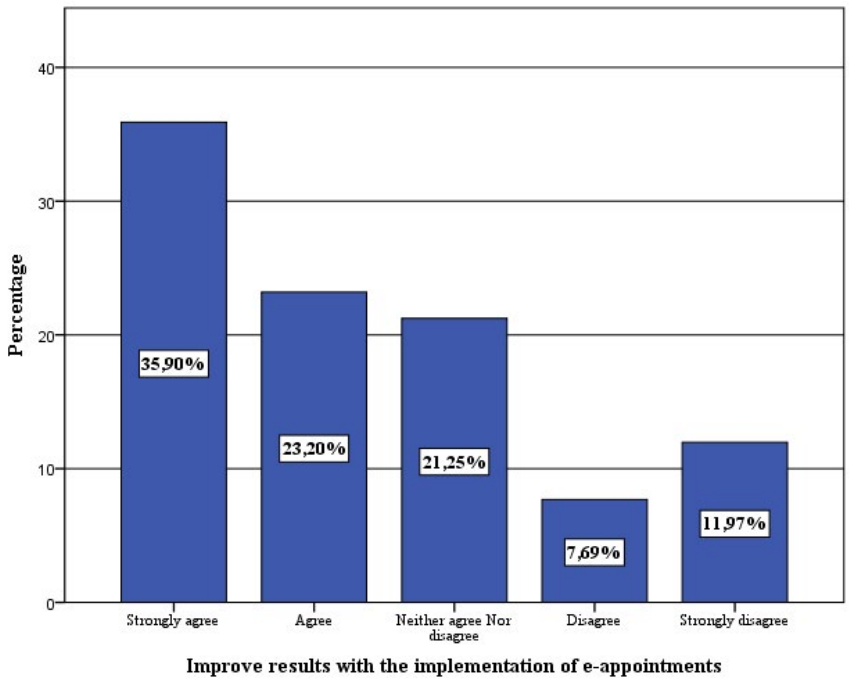

Table 3.3.

Opinion of the participants on the SARS-CoV-2 influence on the system and general practice, N (%)

Participant's opinion	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
SARS-CoV-2 influence					
Reduce spreading	548 (66,9)	130 (15,9)	80 (9,8)	25 (3,1)	36 (4,4)
Need for video-call consultations	371 (45,1)	128 (15,6)	135 (16,4)	65 (7,9)	123 (15,0)
Form for appointment to help determine reasons	382 (46,4)	179 (21,7)	142 (17,2)	56 (6,8)	65 (7,9)
Improve the physician response	472 (57,6)	157 (19,2)	98 (12,0)	42 (5,1)	50 (6,1)

The opinion of the participants on the idea of e-appointment system and the SARS-CoV-2 virus influence in general practice is presented in Table 3.3. The majority of participants agreed that the system would help against spreading of the SARS-CoV-2 virus (82,8 per cent) and provide online video call consultations with the patients avoiding the risk of exposure to the virus by unnecessary visitation (60,7 per cent). Additionally, it would help physicians to determine reasons for visitation from the filled in request for visitation by the patients (68,1 per cent) and improve the physician response for the patients (76,8 per cent).

There are more participants than to be expected who strongly agreed that they were exposed to health risks in waiting rooms at the MFs, additionally there were fewer that agreed, neither agreed nor disagreed, disagreed, and strongly disagreed on the subject than to be expected. Similarly, with the other participants' opinions on exposed health risks, there are differences between the actual count and the expected count. The difference in exposed to health risks in waiting rooms and congestion in MFs was statistically significant (X^2=368,30, P<0,0001). In this case, p<0,05, so we'd reject the null hypothesis that asserts the two variables are independent of each other. The data suggests that the variables exposed to health risks in waiting rooms and congestion in MFs are associated with each other. Furthermore, the effect was moderate (0,332), i.e. congestion in MFs was playing some role in how the participants responded to the question. Same as with reduce spreading of SARS-CoV-2 (X^2=108,50, P<0,0001), form for appointment to help determine reasons (X^2=82,18, P<0,0001), participant type (X^2=19,35, P<0,001), improving results at the general practitioner with e-appointment system (X^2=66,81, P<0,0001), improve the physician response with SARS-CoV-2 cases (X^2=59,60, P<0,0001), participant's gender (X^2=11,94, P<0,018), and need for video-call consultations during pandemic (X^2=41,93, P<0,0001), all are statistically significant. Although the results are statistically significant, the variables were weakly associated (0.182, 0,158, 0,152, 0,143, 0,135, 0,120, and 0.113 respectively), i.e. all of them do not play a big role in how people respond to the question. Other variables, including age group, current residence, most common visitation reason, and most frequent time of day visitation did not reveal any significance or effect on the participants' viewpoints.

DISCUSSION

The majority of participants of this study lived in an urban residence (Table 3.1), which indicates to the increased concerns on health risks, stress, and anxiety due to large number of population in these areas corresponding to other studies (Krefis et al., 2018; Kuddus et al., 2020; Pinchoff et al., 2020). Having this into consideration, Sahasranaman and Jensen (2021) and Sharifi and Khavarian-Garmsir (2020) reported that, the health risks are magnified multiple times during pandemic times with the spread of easily transmitted infection diseases like the SARS-CoV-2 virus.

As shown in Figure 3.2., the majority of participants usually visit their general practitioner by need, indicating that unless the patients show certain signs of sickness, they are not prone to visitation. Having that in mind, a report by the World Health Organization (2020) stated that the population needs to be knowledgeable on the early symptoms of the virus in order to ask help as soon as possible.

As the majority of participants most frequently visit their general practitioner between 08:00 and 12:00 hours (Table 3.2), it indicates that even in pandemic

times the same majority visitation times would apply, unless modified by restrictions during pandemic. As issued by the Government of R.N. Macedonia (2020), the maximum hours for lockdown restrictions in Macedonia were from 16:00h to 05:00h in the morning the next day, meaning that it would not influence much for the majority of the population. Furthermore, most of the participants were faced with crowding in the waiting rooms during their visitations leading to believe that their health was additionally endangered while waiting to be accepted by the physicians (Table 3.2), as confirmed by other studies (Sasaki et al.; Senger, 2011; Beggs et al., 2010). Added to this a report from the European Centre for Disease Prevention and Control (2020) stated that in today's pandemic times this is even more of a treat then before, as such measures must be provided to prevent additional spreading of the disease.

As reported by Zhao et al. (2017), implementing e-appointment system in general practice comes with many advantages and a few disadvantages. The participants' agreed that by establishing e-appointments to general practice would improve work results (Figure 3.3), as confirmed by Graham et al. (2020).

A study by Thornton (2020) reported on the massive influence of SARS-CoV-2 virus on general practice. The majority of participants agreed that the system would help against spreading of the SARS-CoV-2 virus (Table 3.3), as was also stated in a report from WHO Regional Office for the Western Pacific (2021). Additionally, a study by Greenhalgh et al. (2020) talks about the benefits of online video call consultations with the patients avoiding the risk of exposure to the virus by unnecessary visitation, as the participants of this study shared their opinion presented in Table 3.3. Furthermore, a pre-filled form for appointment would help physicians to determine reasons for visitation and thus improve the physician response for the patients (Table 3.3), especially in pandemic times in which the physicians need to recognize symptoms of the infection's disease beforehand, as stated in Yinan et al. (2020) and Salman et al. (2020).

CONCLUSION

With the fast spreading of the SARS-CoV-2 virus chances to exposure to the disease are increased especially at general practice as being the first line to face the patients. This led to issue various measures from health and government authorities, which had an effect on the mental health of the population. Additionally, it raised the population's awareness of the possibility of exposure to health risks while visiting the physicians affecting general practice even more. Results of this study suggest that participants have increased concerns about their safety and health compared to the times before the pandemic. Furthermore, general practitioners also fear exposure to the virus as taking care of patients' needs in their medical facilities. The implementation of e-appointment system to general practice comes with many advantages concerning these issues, mainly improving work results and fight against the spreading of the disease. The public health authorities and governments should take into consideration these findings and see how all of this influences the population before implementing extra restrictions and regulations regarding the general practice during pandemics.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTIONS

Concept of the manuscript was made by, Viktor Denkovski and Goce Gavrilov; the methodology was designed by, Viktor Denkovski; collection of data was done by Viktor Denkovski; statistical analyses of data was performed by, Viktor Denkovski; draft of the manuscript was written by, Viktor Denkovski and Goce Gavrilov; All listed authors have read and agreed to the published version of the manuscript.

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