PRACTICES AND PERCEPTION TOWARD MEDICATION USAGE FOR THE CORONAVIRUS DISEASE-2019 AMONG PEDIATRIC NURSES: A CROSS-SECTIONAL SURVEY

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ABSTRACT

Coronavirus disease 2019 (COVID-19) has rapidly become a global human health threat. Pediatric nurses are best qualified to be a trustworthy source of accurate health information for children. It is mandatory to consider the practice and perception of a very unique category of nurses. This study was conducted to evaluate the practices and perception of pediatric nurses regarding medication usage for COVID-19. A cross-sectional self-administered questionnaire was distributed among pediatric nurses (n=92) via corporate e-mail and other social media channels (WhatsApp and Instagram) in a tertiary care hospital in Turkey. The analysis was performed using Statistical Package for Social Sciences (SPSS) software, version 22 (IBM Corp. USA).

Data collected were subjected to descriptive statistics. The personal self-medication was 13% (n=12) and multivitamin usage was increased from 17.4 % (n=16) before the COVID-19 to 29.3% (n=27) during COVID-19 among the participants. Almost, 55.4% (n=51), 51% (n=47), 48.9% (n=45), 7.6% (n=7) and 3.2% (n=3) of the respondents advocate the usage of antibiotics, antimalarial, multivitamins, herbal products and complementary and alternative medicines respectively for COVID-19 treatment. Majority of the participants (63%; n=58) had desire for more knowledge and additional education about COVID-19 medication. This study found that some pediatric nurses involved in non-evidence-based medication practices and a divergent beliefs was also observed. Continued medical education, awareness-raising training and campaigns are required for this unique category of nurses.

INTRODUCTION

A novel coronavirus that caused coronavirus disease 2019 (COVID-19) was first detected in Wuhan, China, in December 2019. Similar to other past respiratory coronavirus infections (e.g. severe acute respiratory syndrome; SARS and middle east respiratory coronavirus syndrome: MERS), patients presented with fever, dry cough, shortness of breath and pulmonary infiltration in the severe case (1). The global pandemic of COVID-19 has adverse effects on health, economic and political systems. COVID-19 has also developed a universal psychosocial effect and has raised anxiety and panic in the general public as well as in healthcare professionals (2). There is still no conclusive cure, and researchers and pharmaceutical firms are racing globally towards a vaccine. Currently some pharmaceutical industries announced the discovery of effective vaccine (3,4), however it will take long time to distribute to the whole world and to assess the post-marketing surveillance safety profile of said vaccines. In such cases individuals exposed to complications and uncertainty prefer to follow self-care strategies and embrace non-evidence and non-conventional treatment approaches for COVID-19 (2). Nurses constitute approximately 50% of the global health workforce and involved in direct patient care in hospitals for COVID-19. Nurses' knowledge, practice and perception about disease directly influences patient health outcomes. This pandemic is likely to transform society in a several ways, with long-term implication still widely unknown (5,6). The World Health Organization (WHO) also encourages nurses

to work to the full extent of their education and training (7). Medical literature suggests that pediatric patients are minimally prone to COVID-19 but most seriously affected by the psychosocial effects of this pandemic (6). Pediatric nurses are best qualified to be a trustworthy source of accurate health information for children. The roles of pediatric nurses are dynamic and involve continuous vigilance in delivering quality care to the patient (1). It is mandatory to consider the practice and perception of a very unique category of nurses. To date, no similar research has been performed in Turkey as well as globally among pediatric nurses.

Material and methods

Aim

This study was conducted to evaluate the practices and perception regarding COVID-19 medicines among pediatric nurses in the tertiary care hospital in Adana, Turkey.

Study design

A cross-sectional questionnaire-based research was conducted between August 10, 2020 to September 10, 2020 at a 1,200-bed government-funded Cukurova University Balcali Hospital (Turkish: Çukurova Üniversitesi Balcalı Hastanesi) in Adana, Turkey.

Participants

According to hospital management, there are 150 pediatric nurses working in the hospital. The minimum sample size measured was 97 using the Raosoft sample size calculator (http://www.raosoft.com/samplesize.html). The response distribution was assumed to be 50%, the error margin 5%and the confidence level of 90% were chosen for the sample estimate.

$$n = N \frac{x}{(N-1)E2 + x}$$

Where x is a confidence interval, N is the population size, and E is the margin of error.

Instrument and Data collection

A descriptive mini questionnaire was designed for this study, based on some helpful literature search (1,5,8). A self-reported online one-page questionnaire was prepared in English and Turkish (the native language of Turkey) using Google forms, and a survey link was circulated to nurses working in different pediatric wards via corporate e-mail. We used online tools to develop an automated web-based questionnaire because to prevent the 2019-nCoV outbreak through droplets and contact. Pediatric nurses were encouraged to participate in the study and to share the questionnaire with other colleges working in the same hospital via other social media channels (WhatsApp and Instagram). The questionnaire was administered for the first time to the 10 pediatric nurses who were not included in the final participants. After that the questionnaire was further updated in the light of the feedback. The final survey was launched on August 10, 2020 and the acceptance of the response was closed on September 10, 2020 when the required sample size was reached. The final questionnaire took approximately 5 minutes to be completed . Nurses engaged in pediatric wards for more than 1 year at the time of data collection in the tertiary care hospital were included. Nurses working less than one year at the time of data collection and interns were excluded. The questionnaire was divided into three sections. The first part included demographic data (sex, age, level of education and work experience) of the participants. The second section consisted of six close-ended questions (Yes/No) to evaluate the practices of pediatric nurses regarding medicine usage for COVID-19. The third part of the survey included seven close-ended questions (Yes/No or sometimes) regarding the perception. The study was approved by the Non-Interventional Clinical Research Ethics Committee Faculty of Medicine Cukurova University (Reference/Meeting No: 102, Date: 07 August 2020: supplementary file 1).

Data Analysis

The data was summarized using Microsoft Excel 2010 and reviewed for completeness and accuracy. The analysis was performed using Statistical Package for

Social Sciences (SPSS) software, version 22 (IBM Corp. USA). Data collected were subjected to descriptive statistics.

Results

A total of 98 participants completed the questionnaire (6 responses were omitted due to an error in filling out the questionnaire/missed information). Finally, 92 respondents were included in this study. Females (n=76; 82.6%) were more than males (n=16; 17.4%) with an average age of 35.7 years. Most of the participants had a bachelor of science degree in nursing (n=73; 79.34%) followed by a master of science degree in nursing (n=18, 19.56%) and a PhD

in nursing (n=1; 1.08%) with an average of 10.68 years of nursing experience. Out of the total, 4 (4.3%) participants confirmed that they had been infected by the COVID-19 virus.

The prevalence of self-medication was 13% (n=12) in this study. Most of the participants (n=57; 62%) reported increased medication usage during COVID-19 as compared to pre-pandemic phase. Additionally, the respondents indicated that the prevalence of multivitamin supplements usage had increased from 17.4% prior to the COVID-19 outbreak to 29.3% during the outbreak in current study. Further details are given in Table 1.

Table 1: Pediatric nurses' medication usage for COVID-19 (N = 92)

Questions	Yes n (%)	No n (%)
Self-medication during COVID-19.	12 (13)	80 (87)
Family doctor prescribed medicines for COVID-19.	4 (4.3)	88 (95.7)
Medication usage increased as compared to pre-pandemic COVID-19 phase.	57 (62)	35 (38)
Started to store additional medication in the hospital working place and home.	26 (28.2)	66 (71.8)
Use of multivitamin prior to COVID-19.	16 (17.4)	76 (82.6)
Use of multivitamin during COVID-19 pandemic.	27 (29.3)	65 (70.7)

COVID-19= Coronavirus disease 2019; n=number; %=percentage

Almost 55.4% and 51% were of the opinion that antibiotics and antimalarial medicines respectively are effective and should be used in the treatment of COVID-19. Overall, 48.9%, 7.6% and 3.2% of respondents perceived that multivitamins, herbal products and complementary and alternative medicine (CAM)

therapies respectively are effective for COVID-19 treatment. Furthermore, the majority of the participants (63%) desired for more knowledge and additional education about medicines used for COVID-19 among pediatric nurses in this study (Table 2).

Table 2: Pediatric nurses' perception toward medication usage for COVID-19 (N = 92)

Questions	Yes n(%)	No n (%)	Sometimes n (%)
Antibiotics are effective for COVID-19 treatment.	51 (55.4)	41 (44.6)	0 (0)
Anti-malarial medicines should be used for COVID-19 treatment.	47 (51)	45 (49)	0 (0)
Multivitamins are beneficial for COVID-19 treatment.	45 (48.9)	11 (11.9)	36 (39.1)
Herbal medicines are effective in treating COVID-19.	7 (7.6)	63 (68.4)	22 (23.9)
CAM therapies, such as cupping, leech therapy, hajama etc. can be used against COVID-19.	3 (3.2)	82 (89.1)	7 (7.6)
COVID-19 had increased the desire for self-medication among parents for their children protection.	42 (45.6)	14 (15.2)	36 (39.1)
Need more knowledge and additional education about the mechanisms of action, dose, and usage pattern of medicines used for COVID-19.	58 (63)	11 (11.9)	23 (25)

n=number; %=percentage; COVID-19= Coronavirus disease 2019; CAM=Complementary and alternative medicines.

Discussion

The prevalence of self-medication was 13% in current study and these findings were also supported by a study in Brazil (24.2%) (9), Kenya (32.8%) (8) and Ethiopia (59.7%) (10). The reported increased medication usage during COVID-19 was 62% in this study. Similar findings were also reported in Kenya (60.4%) (8) and Nigeria (73%) (11). According to a recent published study, approximately 84.1% (n=280) of health workers indicated that the COVID-19 pandemic had raised the demand for medication usage (8). The choice of self-medication and rise in medicines usage in our study suggests that peoples are more likely to rely on self-administration of medicines and have tried to reduce the risk of infection to protect themselves from an outbreak (12).

Moreover, the prevalence of multivitamin supplements usage had increased from 17.4% to 29.3% during the COVID-19 outbreak in current study. A recent published study in Lebanon also reported the 59.5% increased consumption of multivitamins (especially vitamin C) supplements during COVID-19 (5). The possible reason behind increase intake of multivitamins among pediatric nurses may be due to the more defined and effective role of multivitamins (vitamin A, C, D, and E) on immune system. These vitamins play a pivotal role in prevention of several viral infections like COVID-19 (13).

In this study, almost 55.4% and 51% of the respondents were of the opinion that antibiotics and antimalarial medicines respectively are effective and should be used in the treatment of COVID-19. Similar results were also highlighted by Nigerian study (14). The world is now dealing with the COVID-19 pandemic, which has been declared a global public health emergency and rise again in different countries. As a result of its rapid spread, the disease has endangered lives and caused psychological trauma and anxiety to health workers and the general population in many parts of the world (2). Tackling a life-threatening infection for which there is not easily available vaccine or specific effective treatment, the general public and healthcare practitioners may feel tempted to adopt health care practices that are not based on the best available scientific evidence. The main pharmacotherapy of COVID-19 appears to rely on the assumptions of clinicians as to what medicine or combination of medicines should work (15).

The respondents also perceived that multivitamins (48.9%), herbal products (7.6%) and CAM (3.2%) are effective for COVID-19 treatment. Overall, 48.9%, 7.6% and 3.2% of respondents perceived that multivitamins, herbal products and CAM respectively are effective for COVID-19 treatment. These findings were also supported by previously published studies in South Korea (12). According to the literature, the ease of access to such remedies and as well the belief that they are natural, safe, and harmless increase the use of these remedies (16).

Interestingly, findings of this study showed that majority of the pediatric nurses (63%) had a vast desire for more knowledge and additional education about medicines used for COVID-19. Similar findings were also reported in published studies (5,6,8). It is mandatory that during the COVID-19 outbreak, more attention should be paid to the knowledge and professional education of nurses working in pandemic hospitals for the better patient care (1,7). Public health authorities should also create an efficient forum for pediatric nurses to provide validated and credible information to protect people's safety during public health emergencies.

Like any study, our research also has some limitations. The lack of variation in research locations, did not measured the economic, traditional, socio-cultural differences within the area and correlation of practices with sociodemographic variables are the limitation of this study. Moreover, there are no studies that examined the practice and perception of pediatric nurses during COVID-19 worldwide and primarily in the Middle East and Turkey, which also limited our ability to compare our results with similar studies of a similar population and socioeconomic level, thus our data may not be generalized.

CONCLUSION

The current study demonstrated the non-evidence-based medicine practices among pediatric nurses during COVID-19. A deep desire for further knowledge and education regarding medicines used for COVID-19 was also observed. Further defined and assessed via focus group discussions, comprehensive interviews and multi-dimensional action-based research are required in the future. Continued medical education and awareness-raising training and campaigns are required for pediatric nurses. This study will provide valuable data for the health authorities to take effective control steps regarding the quality and safety of medical practices for COVID-19. The study will also provide baseline evidence for researchers to further explore the practices, perception and determinants of medicines usage for COVID-19 in various health care settings and special populations.

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