Original Article

KNOWLEDGE OF NEWBORNS' MOTHERS ON BREASTFEEDING DURING COVID-19, HIV AND TUBERCULOSIS INFECTION ATTENDEE IN SELECTED HOSPITALS

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ABSTRACT

Background: Two-thirds of the HIV mothers planned to breastfeed their infants while one-third opted for formula feeding; same as during Tuberculosis or COVID-19 infection. What would be the mother do during breastfeeding? Whether the mother could breastfeed their newborn or not. For that it is necessary to assess the level of knowledge of newborns mother on breastfeeding during COVID-19, HIV and Tuberculosis.

Methods: It was a descriptive type of cross sectional study was conducted at Maternal and Child Health Training Institute, Azimpur, Dhaka from 1st January to 31st December 2021. Mother of newborns who are willing to participate were conveniently selected. Around 289 sample was selected. Pre tested semi structured questionnaire was used to collect the data. Level of knowledge was measured by knowledge score. Each question of knowledge carries one (01) mark. Each correct answer had 1 mark and incorrect answer had 0 mark. 1-11 score (<60%) was categorized as fair knowledge; 12-15 score (60-79%) was categorized as good knowledge and 16-20% score (80% and above) had very good knowledge.

Results: Age and knowledge of whether TB-positive mothers may breastfeed have an association (2=4.488, p = 0.034); age and knowledge of whether HIV-positive mothers can breastfeed have an association (2=9.632, p = 0.002). There is a correlation between occupation and knowledge of whether mothers who have COVID 19 positive status can breastfeed (5.044; p=0.046), as well as a correlation between occupation and knowledge of whether mothers who have TB positive status (9.365; p=0.002). Family income has a correlation with knowledge of whether mothers who are COVID 19 positive, HIV positive, or TB positive can breastfeed (2=17.695, p = 0.0001), COVID 19 positive mothers have a correlation with knowledge of whether they can breastfeed (2=7.511, p = 0.006), and HIV positive mothers have a correlation with knowledge of whether they can breastfeed (2=8.675, p = 0.003). Education level and awareness of whether COVID 19 positive mothers can breastfeed are correlated (2=10.315, p = 0.001), as are knowledge of whether TB positive mothers can breastfeed (2=10.880, p = 0.001).

Conclusion: Develop targeted educational programs for mothers based on their demographic characteristics, such as age, occupation, and education level.

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INTRODUCTION

Every day, 3000-4000 infants die in the developing world from diarrhea and acute respiratory infections because they are given inadequate amounts of breast milk. More than 10 million children die each year in sub- Saharan Africa and South Asia. A major contributor to their deaths is poor breastfeeding practice[1]. Infants who are not breastfed have a six fold greater risk of dying from infectious diseases[2]. Only about 36% of infants from age 0-6 months are breastfed despite its nutritional and immunological benefits. The condition is further worse in slum areas with vulnerable group of people where a study from Dhaka showed that only 23% of mothers were

exclusively breastfeeding (EBF) their children[3]. Exclusive breastfeeding for the first six months of life is now considered as a global public health goal that is linked to reduction of infant morbidity and mortality, especially in the developing world[4]. Breastfeeding is commonly practiced by a majority of mothers in developing countries, though there are widespread misconceptions about optimal breastfeeding traditions. Breast milk is the first natural food for a baby that provides all the energy and nutrients that the infant needs for the first few months of life. Breastfeeding has both short-term and major long-term effects on the health, nutrition, and development of the child and mother's health.

Appropriate breastfeeding practices prevent child mortality and morbidity from diarrhea, respiratory and other infections, otitis media, necrotizing enter colitis, and sudden infant death syndrome[5]. There are many factors which may affect feeding practices in our country. Various studies have shown that infant feeding could be influenced by socioeconomic status, maternal education, place of living and many other factors. Mother's poor knowledge and negative attitude towards breastfeeding may influence practices and constitute barriers to optimizing. Hence, it is necessary that lactating mothers should have a positive attitude, adequate knowledge and appropriate practices of breastfeeding that can help to prevent pathogens from invading a child's system[6]. In special situation such as mother is effected by infectious disease like HIV, Tuberculosis or COVID-19. What would be the mother do during breastfeeding? Whether the mother could breastfeed their newborn or not. In case series on influenza, included 42 postpartum women, who had a positive influenza test within eight days preceding delivery or in the postpartum period before discharge, during the influenza seasons of 2003 to 2005, and 2009 to 2010. It was found that none of the newborns were isolated from their mothers, and all were breastfed. The mothers and infants were followed-up for one month after delivery. During the season of 2003 to 2005, 23 infected mothers washed their hands thoroughly before breastfeeding, but did not wear masks. The 19 mothers observed during the 2009–2010 season both washed hands and wore masks before breastfeeding. In the end of follow-up, one neonate had fever with negative nucleic acid test result, and the other 39 neonates did not report any influenza-like symptoms[7]. During tuberculosis of mothers lactating mothers do not know whether the newborn could breastfeed or not. In current recommendations regarding management of newborns of mothers with tuberculosis are variable in different countries and have large gaps in the knowledge and practices.

American Academy of Pediatrics (AAP) recommends continued feeding with expressed milk in mothers with pulmonary TB who are contagious, untreated or treated (<3 wk) with isolation. WHO recommends feeding under all circumstances, however, the Malaysian Thoracic Society recommends that if mother is contagious, efforts should be made to use expressed maternal milk for feeding[8]. Two-thirds of the HIV mothers planned to breastfeed their infants while one-third opted for formula feeding. This concurs with a recent Zambian study, in which 26.0% of the HIV-infected mothers chose to formula feed their infants. In a similar study in the Democratic Republic of the Congo, 79.2% of HIV-infected mothers planned to breastfeed their infants. Mothers regarded animal milks as the least healthy infant feeding choice for young infants irrespective of a mother's HIV status. Unmodified cow's milk, used as a breast milk substitute, can increase the risk of developing an iron deficiency in children younger than a year. Nevertheless, most mothers agreed that an HIV-infected mother can indeed breastfeed, and most mothers knew that mixed feeding is not a safe infant feeding option in the first six months[9]. For that it is necessary to assess the level of knowledge of newborns mother on breastfeeding during COVID-19, HIV and Tuberculosis.

METHODS

It was a descriptive type of cross sectional study was conducted at Maternal and Child Health Training Institute, Azimpur, Dhaka from 1st January to 31st December 2021. Mother of newborns who are willing to participate were randomly selected. Around 289 sample was selected. Pre tested semi structured questionnaire was used to collect the data. The questionnaire was developed using selected variables according to specific objectives. The questionnaire contains two parts. A part of the questionnaire contains 6 questions about socio demographic characteristics and B part of the questionnaire contain rest of the questionnaire regarding knowledge about breastfeeding. Level of knowledge was measured by knowledge score. Each question of knowledge carry one (01) mark. Each correct answer had 1 mark and incorrect answer had 0 mark. 1-11 score (<60%) was categorized as fair knowledge; 12-15 score (60-79%) was categorized as good knowledge and 16-20% score (80% and above) had very good knowledge. Ethical clearance of the study was obtained from the Institutional Review Board of NIPSOM (NIPSOM/Academic/2021/213). Permission was taken from concerned authority of the hospital. During data collection informed consent was taken from each

and every respondent; objective of the study was explained in brief to the respondents. Privacy and confidentiality was ensured and maintained strictly. They were assured that they had the right to withdraw themselves from the study any time during data collection period. They were assured that there would be no physical and mental harm to them during the study as there is no invasive procedure would be applied. The questionnaire was pre coded for entry into the software SPSS (version26) and data was analyzed. To minimize data entry errors, check codes were incorporated into the database and the data cleaned to ensure consistency of responses. Analysis was done at 95% CI and 5% level of significance.

In table 1 it is shown that maximum respondents112 (38.8%) were in 21-25 years age group; mean age was 24.93 ± 4.797. About 158 (54.7%) respondents' had secondary education (HSC group). Most of the respondents 277(95.8%) were house wife. About 127(43.9%) respondents belong to 11000-20000-taka monthly family income, mean family income was 23591.70 ±16089.358 taka.

Table 1: Socio demographic characteristics of newborns mother

Variables	Frequency (percentage)
Age of respondents	
15-20 years	57 (19.7%)
21-25 years	112 (38.8%)
26-30 years	89(30.8%)
More than 30 years	31(10.7%)
Mean age =24.93, median=24.00, SD ± 4.797, minimum age 18, maximum age 40 years.	
Educational status	
Illiterate/can sign	6(2.1%)
Primary	38(13.1%)
Secondary	158 (54.7%)
Higher secondary	39(13.5%)
Above higher secondary	48(16.6%)
Occupational status	
House wife	277(95.8%)
Service holder	12 (3.2%)
Family income	
5000-10000 taka	66(22.8%)
11000-20000 taka	127(43.9%)
21000-30000 taka	48(16.6)
31000-40000 taka	15(5.2%)
More than 40000 taka	33(11.4%)
Mean-23591.70 taka; Median-20000.00 taka; SD±16089.358; min-5000 taka; Max-100000 taka	
Total	289(100)

In table 2 it reveals that half of the respondents (50.5%) have the knowledge on colostrum; 67.8% respondents have knowledge on initiation of breastfeeding after birth; most of newborns mother (92.4%) have the knowledge about advantages of colostrum; about 81.3% respondents have the knowledge about pre-lacteal feeding; 92.4% respondents have the knowledge about exclusive breastfeeding; maximum respondents (94.8%) have the knowledge on positioning of breastfeeding. Around 40.8% newborns mother have the knowledge about sore nipple; only 29.4% respondents have the knowledge that COVID 19 positive mother whether can breastfeed. Half of the respondents (51.6%) have the knowledge, whether TB positive mother can breastfeed; around 66.1% respondents have the knowledge on HIV (AIDS) positive mother whether can breastfeed.

Table 2: Knowledge of respondents on breastfeeding

Variables related to knowledge on breastfeeding	f (%)	f (%)
	Know	**Don't Know**
Knowledge on colostrum	146(50.5%)	143 (49.5%)
Knowledge on advantages of colostrum	267(92.4%)	22(7.6%)
Knowledge on initiation of breastfeeding	196(67.8%)	93(32.2%)
Knowledge on prelacteal feeding	235(81.3%)	54(18.7%)
Knowledge on duration of exclusive breastfeeding	267(92.4%)	22(7.6%)
Knowledge on positioning of breastfeeding	274(94.8%)	15.0(5.2%)
Knowledge on sore nipple	118(40.8%)	171(59.2%)
Knowledge on whether COVID 19 positive mother can breastfeed	85(29.4%)	204(70.6%)
Knowledge on whether TB positive mother breastfeed	149 (51.6%)	140(48.4%)
Knowledge on whether HIV positive mother breastfeed	191(66.1%)	98(33.9%)

Table 3 shows that only 6.6% newborns mother had fair knowledge on breastfeeding, whereas 52.2% mothers had good knowledge and 41.2% mother had very good knowledge. Mean knowledge score was 14.86 ± 1.9649.

Table 3: Distribution of knowledge score of newborns mother on breastfeeding

Knowledge score		Frequency	Percent
1-11 score (Fair)	<60% score	19	6.6
12-15 score (Good)	60-79% score	151	52.2
16-20 score (Very good)	80% and above score	119	41.2
Mean-14.86±1.9689; Median-15; Min-4; Max-18			
Total		289	100.0

Table 4: Association between age and knowledge of newborns mother during TB, HIV

	Knowledge on colostrum		x^2 df=1
	Know	**Do not know**	
15- 25 years age	75 (51.4%)	94 (65.7%)	x^2=6.139
> 25 years age	71(48.6%)	49(48.6%)	p=0.013
Total	146	143	
	Knowledge on whether TB positive mother can breastfeed		
15- 25 years age	96(64.4%)	73(52.1%)	x^2=4.488
> 25 years age	53(35.6%)	67(47.9%)	p=0.034
Total	149	140	
	Knowledge on whether HIV positive mother can breastfeed		x^2=9.632 p=0.002
15- 25 years age	124(64.9%)	45(45.9%)	
> 25 years age	67(35.1%)	53(54.1%)	
Total	191	98	

Table 4 shows that there is association between age and knowledge of colostrum (x^2=6.139, p=0.013); there is association between age and knowledge on whether TB positive mother can breastfeed Here x^2=4.488, p = 0.034; there is association between Age and Knowledge on whether HIV positive mother can breastfeed. x^2=9.632, p=0.002.

Table 5: Association between occupational status and knowledge on whether COVID 19, TB, HIV positive mother can breastfeed

Occupation	Knowledge on whether COVID 19 positive mother can breastfeed		x^2
	Know	**Do not know**	**df=1**
Housewife	78(91.8%)	199(97.5%)	5.044; p=0.046
Service holder	7(8.2%)	5(2.5%)	
Total	85	204	
	Knowledge on whether TB positive mother can breastfeed		9.365; p=0.002 (Fisher's Exact Test)
Housewife	148(99.3%)	129(92.1%)	
Service holder	1(0.7%)	11(7.9%)	
Total	149	140	

Table 5 shows that there is association between occupational status and knowledge on whether COVID 19 positive mother can breastfeed (5.044; p=0.046); there is association between occupational status and knowledge on whether TB positive mother can breastfeed (9.365; p=0.002).

Table 6: Family income and knowledge on whether COVID 19 positive, TB, HIV positive mother can breastfeed

Family income	knowledge on whether COVID 19 positive mother can breastfeed		x^2
	Know	Do not know	**df=1**
5000-25000 taka	50(58.8%)	153(75.0%)	x^2=7.511; p=0.006
More than 25000 taka	35(41.2%)	51(25.0%)	
Total	85	204	
knowledge on whether TB positive mother can breastfeed			x^2=17.695; p<0.0001
5000-25000 taka	121(81.2%)	82(58.6%)	
More than 25000 taka	28(18.8%)	58(41.4%)	
Total	149	140	
knowledge on whether HIV positive mother breastfeed			x^2=8.675; p=0.003
5000-25000 taka	145(75.9%)	58(59.2%)	
More than 25000 taka	46(24.1%)	40(40.8%)	
Total	191	98	

Table 6 shows that there is association between family income and knowledge on whether TB positive mother can breastfeed ($x2$=17.695, p = 0.0001); there is association between family income and knowledge on whether COVID 19 positive mother can breastfeed ($x2$=7.511 p, = 0.006); there is association between family income and knowledge on whether HIV positive mother can breastfeed ($x2$=8.675, p = 0.003).

Table 7: Educational status and knowledge on whether COVID 19 positive, TB, HIV positive mother can breastfeed

Educational status	Knowledge on colostrum		x^2
	Know	**Do not know**	**df=1**
Secondary and below	93(63.7%)	109(76.2%)	x^2=5.386;p=0.020
Higher secondary and above	53(36.3%)	34(23.8%)	
Total	146	143	
	Knowledge on Prelacteal feeding		x^2=4.236; p = 0.040.
	158(67.2%)	44(81.5%)	
	77(32.8%)	10(18.5%)	

	235	54	
Total			
	Knowledge on duration of breastfeeding		x^2=4.588; p=0.032
Secondary and below	166(67.5%)	36(83.7%)	
Higher secondary and above	80(32.5%)	7(16.3%)	
Total	246	43	
	Knowledge on fore milk		x^2=8.236; p=0.004
Secondary and below	128(64.6%)	74(81.3%)	
Higher secondary and above	70(35.4%)	17(18.7%)	
Total	198	91	
	Knowledge on whether COVID 19 positive mother can breastfeed		x^2=10.315; p=0.001
Secondary and below	48(56.5%)	154(75.5%)	
Higher secondary and above	37(43.5%)	50(24.5%)	
Total	85	204	
	Knowledge on whether TB positive mother can breastfeed		x^2=10.880; p=.001
Secondary and below	117(78.5%)	85(60.7%)	
Higher secondary and above	32(21.5%)	55(39.3%)	
Total	149	140	

Table 7 shows that there is association between educational status and knowledge on colostrum. (x^2=5.386, p = 0.020); there is association between educational status and knowledge on prelacteal feeding (x^2=4.236, p = 0.040). There is association between educational status and knowledge on fore milk (x^2=8.236, p =0.004); there is association between educational status and knowledge on whether COVID 19 positive mother can breastfeed (x^2=10.315, p =0.001); there is association between educational status and knowledge on whether TB positive mother can breastfeed (x^2=10.880, p = 0.001).

DISCUSSION

Virtually all women (n= 349, 94.3%) agreed that breast milk is the best source of nutrition for most infants. Similarly, 72.4% of mothers believed that nursing enhances the immune system by directly transmitting antibodies from the mother to the newborn, particularly COVID- 19. In terms of sanitary habits, the results showed that general hygienic behaviors such as wearing a face mask, wearing gloves, and hand washing were widely known by the participants. However, one-quarter of the women (25.7%) disagreed, and one-sixth (16%) were unaware that a safe distance between the infant and the sick mother was commonly known among the participating moms. The findings of this study revealed that the participating mothers have a basic understanding of COVID-19, such as the fact that it is caused by a virus (95.7%) and that it is an infectious disease (99.7%). However, the mode of transmission was not generally known among the participants[10]. About three-quarters of respondents acknowledged that coronavirus could be transmitted by breast milk, which was consistent with an Indian study that found half of participants were unaware of COVID-19 transmission through breast milk[11]. In this study it was found that only 29.4% respondents have the knowledge that COVID 19 positive mother whether can breastfeed. From the total study participants, based on knowledge score, 268 (69.8%) of the respondents were grouped as having good knowledge and 116 (30.2%) of the study participants were categorized as having poor knowledge[1]. In this study it was found that only 6.6% newborns mother have fair knowledge on breastfeeding, whereas 52.2% mothers have good knowledge and 41.2% mother have very good knowledge. This study found knowledge levels of participants greater than studies done in Jimma, Ethiopia, which is 38.8%[12].

In contrary to the expectations that mothers were afraid of transmission of coronavirus through breastfeeding which might lead to reduction in breastfeeding rates, two third of mothers of this study (69%) were breastfeeding representing higher rates than studies in Jordan and some Arab countries (Qatar & Kuwait) (58%, 58%, & 39%),[13,14,15] respectively.

In another study it was found that knowledge on HIV transmitted through pregnancy, labor and breastfeeding was 54.2%. Around 50.99% mothers had knowledge on HIV mother transmit the virus to her baby during labor and HIV mother transmit the virus to her baby during pregnancy was 44.03%. it reveal that half of the respondents (50.5%) have the

knowledge on colostrum; 67.8% respondents have knowledge on initiation of breastfeeding after birth; most of newborns mother (92.4%) have the knowledge about advantages of colostrum; about 81.3% respondents have the knowledge about pre-lacteal feeding; 92.4% respondents have the knowledge about exclusive breastfeeding; maximum respondents (94.8%) have the knowledge on positioning of breastfeeding. Only 29.4% respondents have the knowledge that COVID 19 positive mother whether can breastfeed. Half of the respondents (51.6%) have the knowledge, whether TB positive mother can breastfeed; around 66.1% respondents have the knowledge on HIV (AIDS) positive mother whether breastfed.

In a study, the overall participants who had good knowledge were 277 (68.91%). More than two-thirds (67.16%), just half (50.99%), and 44.8% of participants knew about mother to child transmission of HIV during breastfeeding, labor, and pregnancy, respectively. The proportion of mothers who practiced safe infant feeding was 27% and 16% among mothers who had good knowledge and poor knowledge about infant feeding, respectively. In this study, 67.16% of the mothers answered yes that HIV positive mothers transmit the virus to the baby during breastfeeding[16]. Half of the respondents (51.6%) have the knowledge, whether TB positive mother can breastfeed; around 66.1% respondents have the knowledge on HIV (AIDS) positive mother whether can breastfeed[17]. Limitation of the study was the sample size was small and selection only one place in Dhaka city. It was conducted by convenient sampling method.

CONCLUSION

Though the newborns mother had good knowledge whether they can breast feed during COVID 19, HIV, TB infection. But age of the mother, occupational status, family income, educational status of mothers influenced the breastfeeding knowledge. It may be beneficial to target specific educational interventions and support programs tailored to the needs of mothers with different demographic characteristics to ensure they have accurate and up-to-date information about safe breastfeeding practices in the context of COVID-19, HIV, and Tuberculosis infections. Advocate for policies that promote breastfeeding and support mothers during infectious disease outbreaks.

Conflict of interest: No conflict of interest

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Original Article

QUALITY OF LIFE OF COVID-19 PATIENTS ATTENDING SELECTED POST-COVID UNITS

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ABSTRACT

Background: Disease process and its outcome can create impacts on human life; it also impairs quality of life (QoL). During the COVID-19 pandemic situation, a devastating impairment of quality of human life has been occurred over the world. This study aimed to state the quality of life of COVID-19 patients attending post-COVID units of Dhaka Medical College Hospital and Bangabandhu Sheikh Mujib Medical University, Dhaka.

Methods: A cross-sectional study was conducted among 90 COVID-19 Patients (post-COVID period) in post COVID unit of Dhaka Medical College Hospital and Bangabandhu Sheikh Mujib Medical University by pretested structured questionnaire, from July 2021 to December 2021, using a convenient sampling method. Data were collected through face-to-face interviews.

Results: The majority of the respondents (46.7%) were within the 30 to 39 years of age group. In this study about 73.3% of respondents lead poor quality of life after recovery from COVID-19. The findings revealed that, Post COVID depression history of the respondents was associated with the quality of life of the respondents after recovery from COVID-19 (p=0.001). The findings also revealed that the type family of the respondents was associated with the quality of life of the respondents after recovery from COVID-19 (p=0.001). Those who were not admitted into hospital during COVID-19 period maintain good quality of life after recovery from COVID-19 than those who were admitted on hospital during COVID-19 period (p=0.006). Inferential statistics were done at a 95% confidence interval and 5% level of significance.

Conclusions: This study described state of quality of life of COVID-19 patients attending on post-COVID units. It was found that near about three fourth of the respondents seemed that their quality of life became poor after recovery from COVID-19.

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INTRODUCTION

In human history, it is generally zoonosis constitute most of the widespread outbreaks, resulting from the domestication of animals. Cholera, bubonic plague, smallpox, and influenza are some of the most brutal killers in human history. Among the outbreaks of these various diseases are those defined as pandemic, especially smallpox, which throughout history, has killed between 300-500 million people in its 12000 years existence, from 1346 to 1353 an outbreak of the Plague ravaged Europe, Africa, and Asia, with an estimated death toll between 75 and 200 million people, the third major outbreak of Cholera in the 19th century lasted from 1852 to 1860. Like the first and

second pandemics, the Third Cholera Pandemic originated in India, spreading from the Ganges River Delta before tearing through Asia, Europe, North America and Africa and ending the lives of over a million people, HIV/AIDS was first identified in Democratic Republic of the Congo in 1976, HIV/AIDS has truly proven itself as a global pandemic, killing more than 36 million people since 1981 [1]. And at last, since December 2019, there has been an outbreak of pneumonia of an unknown aetiology that was first reported in Wuhan, Hubei Province, China [2]. Following the outbreak, a novel coronavirus, SARS-CoV-2, was identified as the causative virus for the pandemic in China and other parts of the world by the World Health Organization (WHO [3]. By 11 February 2020, there were 43,103 confirmed cases of COVID-19, and of these, 42,708 cases (99.1%) were from China [4]. A comprehensive search from Chinese and worldwide official websites and announcements was performed between 1 December 2019 and 9:30 am 26 January 2020 (Beijing time). A latest summary of 2019-nCoV and the current outbreak was drawn. Up to 24 pm, 25 January 2020, a total of 1975 cases of 2019-nCoV infection were confirmed in mainland China with a total of 56 deaths having occurred [5]. As these data indicates, China has been severely affected by the COVID-19, which has been a major public health disaster [6]. COVID-19 has been considered a relative of severe acute respiratory syndrome (SARS), which has the possibility of transmission from animals to humans [7]. Currently, it is still unclear when the pandemic will reach its peak. However, the SARS-CoV-2 infection has been associated with contact with a local seafood vendor in Wuhan that illegally sold some wildlife animals including bats [8]. In Bangladesh more than 5 lakhs people has been affected and near about 8 thousand people died by COVID-19 disease. The long durable existence of this disease outbreak creates unseen impact over the quality of life of affected patients in different countries. Bangladesh is not out of that. Disease process and outcome create impact on human life according to the duration and severity of that disease. The Constitution of the World Health Organization (WHO) defines health as 'A state of complete physical, mental, and social well-being not merely the absence of disease' that means, this follows that the measurement of health and the effects of health care must include not only an indication of changes in the frequency and severity of diseases but also an estimation of wellbeing and this can be assessed by measuring the improvement in the quality of life related to health care. The quality of life of human being depends on their coping capability during disease period and condition of the period of rehabilitation after the disease. However, few studies have reported the impact of the COVID-19 pandemic on mental health or quality of life in mainland China, even though the pandemic has severely affected China and many other parts of the world [9].

METHODS

Study design and settings
This hospital based cross-sectional study was undertaken to determine the level of quality of life of COVID patients on COVID unit at Dhaka Medical College Hospital (DMCH) and Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh.

Participants were conveniently selected 90 patients aged ≥18 years, and who was recovered from COVID-19 and admitted purposively or took treatment in the selected hospitals.

Data collection procedures
The studied participants were interviewed by a pretested semi-structured questionnaire through the face-to-face interview on January 2021. Pre-test was done among the post-COVID patients came in the post-COVID unit at 500 Bed Mugda General Hospital, Dhaka, Bangladesh.

Statistical analysis
Collected data were checked, edited, coded, and recoded by using IBM SPSS v25. Descriptive statistics such as mean, standard deviation and percent were computed for continuous variables of the participants. Chi-square was used to assess the significance of

associations between two nominal variables and a p-value of <0.05 at a 95% confidence interval was taken as significant. The results were presented in tables and chart.

Ethical approval
Informed written consent was obtained from each participant. Ethical approval was obtained from the Institutional Review Board (IRB) of the National Institute of Preventive and Social Medicine (NIPSOM), Dhaka 1212, Bangladesh. **(NIPSOM/IRB/2020/1225)**

RESULTS

Table 1 describes the socio-demographic characteristics of the post-COVID patients. The mean age of the post-COVID patients was 37.4±8.3 years and most of them (46.7%) were from the age group 30-39 years. Most of the patients were male (59.0%) and married (90.0%). Two-thirds of the patients (66.7%) completed graduation and above level, and service

holders as occupational state. Nearly three-fourths of the patients (74.4%) came from nuclear family. The mean of average monthly income was 52,485.8±18,208.2 taka.

Figure 1 portrays the post-COVID physical syndromes. The most prevalent symptoms were weakness (83.3%), cough (70.0%), headache (37.8%), and palpitations (27.8%).

Figure 2 shows the post-COVID psychological syndromes. The most prevalent symptoms were insomnia (67.8%), depression (63.3%), vertigo (42.2%), lack of concentration (36.7%) and anxiety (36.7%).

Table 2 demonstrates the different activities related to the QoL of the post-COVID patients. Regarding working hours, about two-thirds of the patients (73.3%) were able to works 8-12 hours daily before COVID positive, but in post-COVID period one-third of the patients (33.3%) were able to works same duration. Regarding physical exercise, about two-thirds of the patients (74.4%) did exercise regularly, but in post-COVID period it's declined on 44.4%. Cent percent patients (100%) were physically active before COVID positive, but in post-COVID period dependency among the patients were increased 37.8%. Regarding sleep pattern, about cent percent patients (98.9%) had a regular sleep pattern, but it's became 26.7% after COVID recovery.

Figure 3 illuminates the levels of QoL of the post-COVID patients. The majorities of the patients (86.7%) lead a good quality of life before COVID, and about two-thirds of the patients (73.3%) lead a poor quality of life in post-COVID period.

Table 3 interprets that the quality of life of the post-COVID patients were significantly associated with family type (p=0.001), post-COVID anxiety (p=0.001), and post-COVID depression (p=0.006). The QoL was poor among the patients belongs to nuclear family (83.6%), and had a history of anxiety (100%), and depression (96.5%).

Table 1: Socio-demographic characteristics of the patients (n=90)

Traits		Frequency (n)	Percent (%)
Age groups (years)	18-29	13	14.4
	30-39	42	46.7
	40-49	12	13.3
	>50	23	25.6
	Mean±SD	37.4±8.3	
Sex	Male	53	59.0
	Female	37	41.0
Marital state	Married	81	90.0
	Single	9	10.0
Education	Below graduation	30	33.3
	Gradation and above	60	66.7
Occupation	Service holders	60	66.7
	Homemakers	14	15.4
	Businessmen	13	14.3
	Students	3	3.3
Family type	Nuclear	67	74.4
	Extended	23	25.6
Monthly family income (Taka)	≤40,000	13	14.4
	40,001-60,000	39	43.3
	>60,000	38	42.2
	Mean±SD	52,485.8±18,208.2	
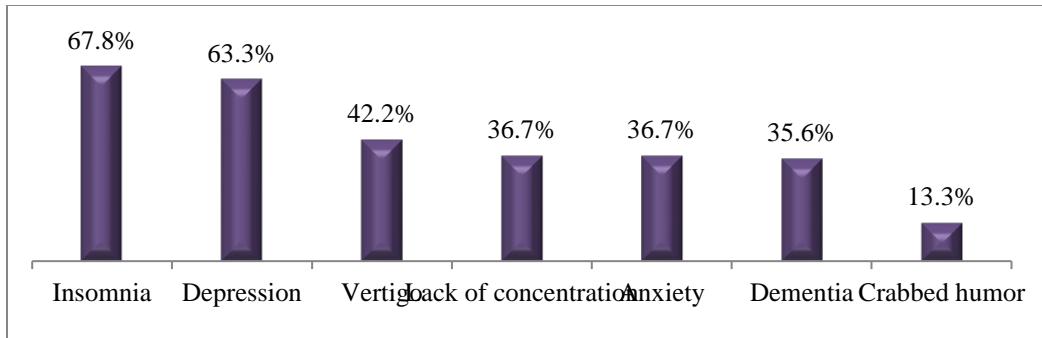
Figure 1: Post-COVID-19 physical syndromes
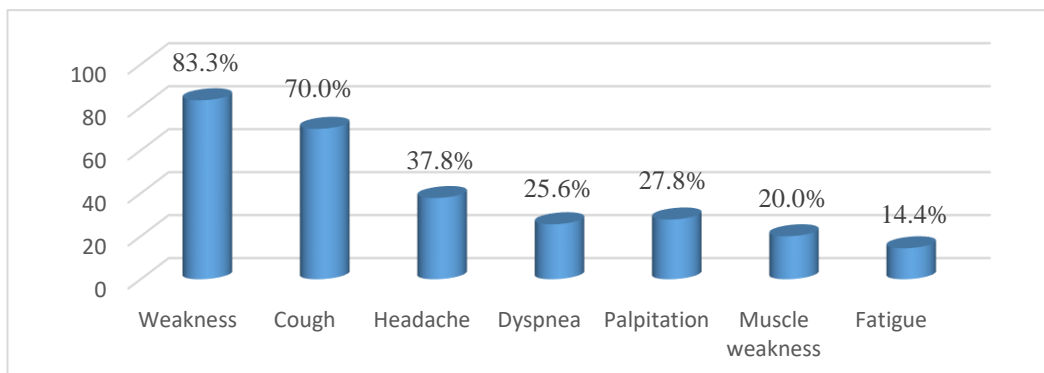
Figure 2: Post-COVID-19 psychological syndromes

Table 2: Activities related to the QoL of the patients (n=90)

|		Before COVID positive		After recovery	
		Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Working hours	1-4	6	5.6	35	38.9
(hours)	4-8	17	18.9	25	27.8
	8-12	67	73.3	30	33.3
	Mean±SD	±3.68		±2.87	
Physical exercise	Yes	67	74.4	40	44.4
	No	23	25.6	50	55.6
Physical condition	Active	90	100	56	62.2
	Dependent	0	0	34	37.8
Sleep pattern	Regular	89	98.9	28	31.1
	Interrupted	1	1.1	62	68.9
Quality of life	Good	78	86.7	24	26.7
	Poor				
		12	13.3	66	73.3
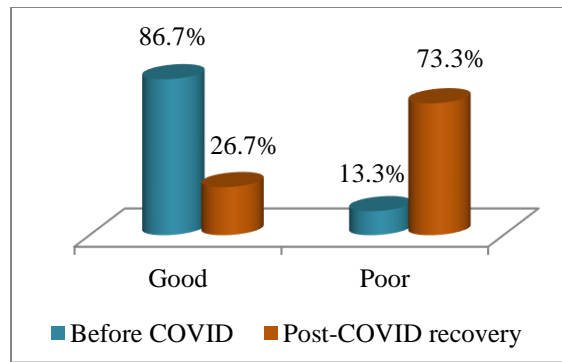
Figure 3: Levels of QoL of the post-COVID patients (n=90)

Table 3: Association of QoL with different attributes of post-COVID patients (n=90)

Attributes	Quality of life			χ2 value	p-value
	Good	Poor	Total		
	n(%)	n(%)	n(%)		
Family type					
Nuclear	11(16.4)	56(83.6)	67(100)	14.082	*0.001
Extended	13(56.5)	10(43.5)	23(100)		
Post-COVID anxiety					
Yes	0(0.0)	33(100)	33(100)	14.393	*0.001
No	16(34.8)	30(65.2)	46(100)		
Post-COVID depression					
Yes	2(3.5)	55(96.5)	57(100)	7.474	*0.006
No	14(63.6)	8(36.4)	22(100)		

*Statistically significant value

DISCUSSION

This cross-sectional study was carried out over the patients attending in post COVID unit at DMCH and BSMMU to determine the state of the quality of life of COVID-19 patients after their recovery from COVID-19. It was carried out for a period of one year from February 2021 to June 2021. The desired data were collected by using semi-structured questionnaire. Quality of life-based questionnaire were made by WHOQOL-BREF questionnaire. The significant findings of the study were discussed according to analysis of the tables and figures.

According to the study 42(46.7%) respondents age was between 30 to 39yrs. In this study 53(58.9%) of respondents were male where in another study they found 50.2% of respondents were male [10]. 81(81%) of respondents were married and 81(81%) were Muslim, 60(66.7%) of them completed their graduation, about 29(31.9%) were on government job and 27(29.7%) were on private job, 37(42.2%) of them earned above 60,000 takas. The result shown that 44(48.9%) of respondents need hospital admission and

39(45.6%) required oxygenation, 75(83.35%) developed post COVID weakness and 63(70%) of them developed cough, 61(67.8%) of them developed post COVID insomnia and 57(63.3%) developed depression. The study also shown that 67(73.3%) of respondent's had 8-12hrs working capability in pre COVID period; that declined at 30(33.3%) in post COVID period. In pre COVID period 67(74.4%) respondents did exercise where in post COVID period only 40(44.4%) did make the exercise. The result also shown that In post COVID period 62(68.9%) developed interrupted sleep, 52(57.8%) were dissatisfied with their health, 51(56.7%) gave a little concentration in their everyday life, 50(55.6%) were dissatisfied with their working place, 56(62.2%) had a little amount of money to meet their need and 66(73.3%) of them seemed their quality of life is poor. In this study 63.3% of respondents developed depression due to pandemic situation which hamper their quality of life. But in another study 52.1% of respondents were developed depression [9]. In this study we also found 44.4% of respondents spend their time in exercising but in their study, they found 59.7% of respondents did make their exercise [9]. The result

was not similar probably because of different lifestyle maintenance in different geographical area.

CONCLUSION

This study described state of quality of life of COVID-19 patients attending on post COVID units. The study was conducted in post COVID units at Dhaka medical college hospital and Bangabandhu Sheikh Mujib Medical University. It was found that near about half of the respondents age was between 30-39 years, about three fourth respondents completed their graduation, near about half of the respondent family income was above 60,000 takas. About half of the respondents had the history of hospitalization and oxygen requirement. More than three fourth of the respondents developed weakness and near about three fourth respondents developed insomnia, cough, depression and dependence in their daily life after recovery from COVID-19. More than half of the respondents were dissatisfied with their health, working place environment, condition of living place, access of health care services, sleep pattern, quantity of money to meet needs after recovery from COVID-19. Near about three fourth of the respondents seemed that their quality of life became poor after recovery from COVID-19. Study found the lack of post COVID units and lack of advertisement about post COVID units. Findings from the study can be useful to create the concentration of the policy maker as well as government by establishing more effective and specialized follow-up centre over the country, Thus the people can get proper follow-up care and retain their quality of life.

Recommendations

Number of the post COVID units should be increased. Establishment of more counselling centre for patients for life style modification should be institutionalized. Specialized follow up centre should be established.

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