

# BEYOND KNOWLEDGE, ATTITUDE AND PRACTICE (KAP): A STUDY ON THE COVID-19 PANDEMIC SITUATION IN BANGLADESH

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## Abstract

*The COVID-19 pandemic of 2020 has influenced human health and society alike. Among others, the Knowledge, Attitude and Practice (KAP) model is an important sociological tool to understand the response and prepare the preventive strategies in a global pandemic. This study aims to investigate the relevance of the KAP model to understand the COVID-19 pandemic situation by measuring participant's knowledge and outlook towards the pandemic and eventually how this results in their everyday practice. An online cross-sectional survey was carried out among university students of Bangladesh. Data were collected during the onset of the pandemic: March-April 2020. The finding reveals the KAP model shows relatively low success in explaining the COVID-19 situation in Bangladesh's social context. Besides, existing features of the KAP model can hardly shed light on the diversity of socio-economic conditions, strong prevalence of intersectionality, evolving nature and multidimensionality of knowledge. By showing some limitations of the KAP model, this study suggests going beyond the KAP model (if necessary) to understand the complexity of the COVID-19 condition, which in turn widens its scope for further improvement.*

**Keywords:** COVID-19, KAP Model, Multidimensional knowledge, Bangladesh

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## **Introduction**

The coronavirus disease, widely known as COVID-19, is a highly infectious disease of respiratory system caused by a virus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Gorbalenya et al., 2020). The infection was first identified in Wuhan province of China in December 2019 and soon it spread worldwide. On January 30, 2020, World Health Organization (WHO) declared a Global Health Emergency and a pandemic on March 11, 2020 (Adhikari et al., 2020; Cucinotta & Vanelli, 2020). According to WHO (2020), it has infected 82,579,768 people causing death of 1,818,849 in 220 countries till December 31, 2020. In Bangladesh, the pandemic was officially declared on March 8, 2020, when the first case of the disease was announced (Anwar, Nasrullah & Hosen, 2020). As of 2 February 2021, total 536,525 were infected and 8,161 died, according to the official data (Directorate General of Health Services, 2020).

To control the spread of the disease, countries took various initiatives including social distancing, lockdown, travel bans and strict healthcare and hygiene measures. These initiatives, however, had various socio-economic consequences like rise in unemployment, fall in price of particularly the primary products, as a whole, creating recession around the world (Nicola et al., 2020). In research works, vulnerabilities like social exclusion were feared mainly in garments sector, urban slums etc. areas in Bangladesh during the pandemic (Sakamoto, Begum & Ahmed, 2020). The pandemic is also predicted to affect the overall economy of the country. The World Bank (2020) predicted a recession in the current calendar year, with GDP growth falling from 8.2% (2019) to only 2-3%. Therefore, people's perceptions of COVID-19 have influenced the life and livelihood. Along with many other frameworks, Knowledge, Attitude and Practice (KAP) model has been used to explain the ground reality associated to any pandemic situation. Typically, KAP model attempts to understand people's perceptions on and around various aspects of a pandemic reality by assessing their knowledge, attitude, and practice.

KAP studies can measure the extent of a known situation and confirm or disprove a hypothesis that provides a new tangent of the reality (Yap, Lee, Yau, Ng & Tor, 2010). Thus, the KAP study can provide with necessary insights so that researchers can recommend suitable strategies to the policymakers (WHO, 2008). Several KAP studies (Abdelhafiz et al., 2020, Azlan, Hamzah, Sern, Ayub &

Mohamad, 2020; Lau et al., 2020; Olum, Chekwech, Wekha, Nassozi & Bongomin, 2020; Taghrir, Borazjani & Shiraly, 2020) that were carried out at the onset of the pandemic all over the world end up with some recommendations such as rapid health communication strategies, separate guidance for the low-income community, specific education for health care workers, etc. Specific suggestions for Bangladesh are tailored guidance programs, transparent communications, better communication channels improving housing conditions and education for slum-dwellers (Paul et al., 2020; Islam et al., 2020; Ferdous et al., 2020; Rabbani et al., 2020). Available understanding till today assumes that amount of knowledge is directly proportional to the attitude and practice and all three parameters are directly correlated to successful preventive strategies (WHO, 2008) as depicted in figure 1.

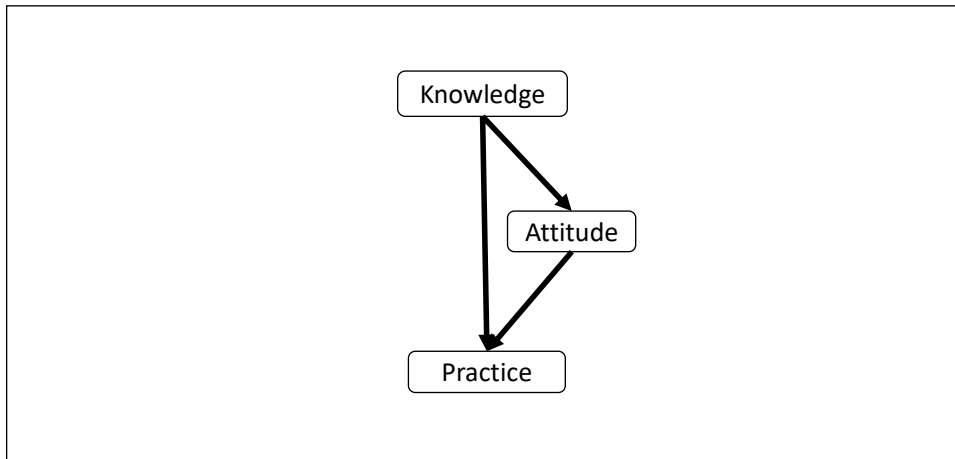


Figure 1: The conventional KAP model where practice is directly proportional to attitude and knowledge and attitude is shaped by knowledge

This core assumption of the KAP model can be reasonable if and only if knowledge is absolute, attitude is measurable, and practice is always knowledge-based. To elaborate, according to a research (Launiala, 2009), attitude can be tough to measure in scales, because, apart from knowledge, social belief, emotions, and multiple factors can affect attitude towards a disease.

Against this backdrop, the current study was designed to explore the relevance of the KAP model to understand the COVID-19 pandemic situation by measuring participant's knowledge and outlook towards the pandemic and to understand

eventually how those results in their everyday practice. To do so, this paper is structured in the following way: first the introduction, then comes the methods, followed by a section for results. The next section presents a discussion followed by a conclusion.

## Methods

### Participants

In the current exploration, a cross-sectional survey was conducted over the public university students. The survey questionnaire was designed to obtain data from March 18, 2020, to April 18, 2020. It was made available online from April 20-30, 2020. As the country was under lockdown during the interview, an online survey questionnaire through Google Form was used. The reason for using online survey is to avoid face-to-face contact with both respondents and fellow co-authors. The medium of communication in the questionnaire is Bengali, a language spoken and understood all over the country. The decision of choosing public universities was taken because the probability of finding students coming from all socio-economic strata of the society is higher in this approach. The respondents gave verbal consent before participating willingly in this online survey.

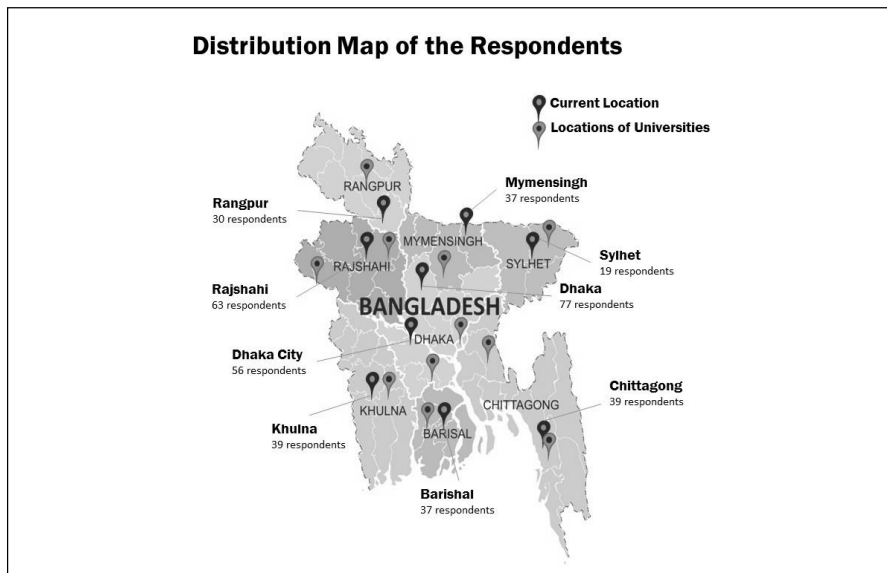


Figure 2: Current location of the respondents. The original map was taken from Wikimedia and edited. The map was not subjected to copyright (CC BY 1.0).

Only the data provided by public and government university students were considered, this was ensured by a set of questions to the respondents regarding their department and universities. Following non-probability sampling, the sample size was 401. Among the responses, four had been excluded: these were obsolete because of textual error and responses were irrelevant. Finally, 397 respondents were from different public and government universities of Bangladesh and their current location is dispersed across the country (figure 2). The distribution was random as a prompt decision of closing the questionnaire was taken by the team; more days would result in more responses all over the country.

### **Structure of the Questionnaire**

The survey questionnaire was divided into four segments. First segment explored demographic and socio-economic background of the respondents; second segment was designed to know knowledge, attitude, and practice of students; third one intended to understand support and accessibility to the needs of the respondents and final one was designed for exploring socio-economic consequences and withstanding capability of the respondents, and to understand their perception for government initiatives. Most of the questions were close ended.

### **Statistical Analysis**

The data analysis was performed using Microsoft Excel 2010 and STATA. Microsoft Excel was used for editing, sorting, compiling, and coding. The excel file was then imported into STATA software. Descriptive statistics (frequencies, percentages, means, and standard deviations) and the two-sample t-test were performed. The P value was set at  $< 0.05$  as a level of significant.

### **Results**

Among the 397 respondents, 69.02% (274) were male whereas 30.98% (123) were female students. Of the total respondents, 77.08% (306) was from undergraduate level and 22.92% (91) was from graduate level. The average age of the respondents was 21.78, with a range of 17-27 years; however, the mode was 21 and the median was 22 years.

### **Knowledge, Attitude and Practice** *Source of Information*

Participants were asked to choose among their primary source of information on COVID-19. More than half chose Facebook (51.6%) over other media and information sources (figure 3). However, male respondents were found to be less dependent on Facebook (49.5%) than female respondents (57.7%).

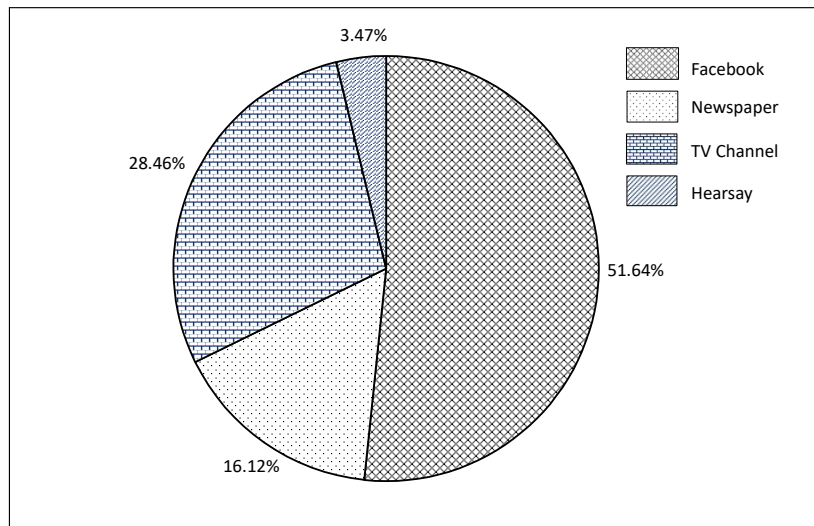


Figure 3: Sources of knowledge of the participants

### **Knowledge**

Knowledge on the pandemic has been assessed through several questions on isolation, social distancing, treatment, and preventive options, symptoms, and transmissions. Figure 4 shows that more than 93.2% respondents were aware about the term isolation and have convergent knowledge on physical and social distancing (99.0%). Surprisingly, respondents possessed less knowledge on primary symptoms of COVID-19 and how this viral disease is spread to the people. Most importantly, only about one-fourth of the respondents (23.9%) provided the apparently correct information on the preventive measures and treatment methods.

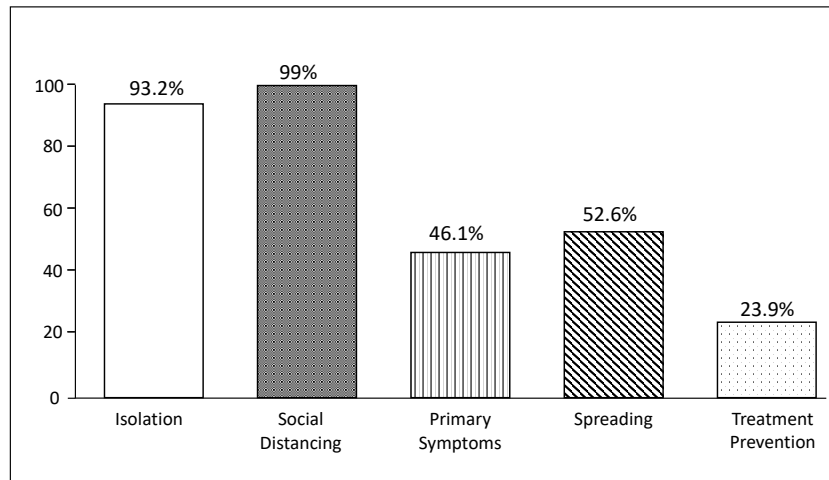


Figure 4: Knowledge of the participants on COVID-19 pandemic

***Attitude***

According to figure 5, all the respondents (100.0%) agreed to follow the rule of washing their hands and almost all (97.0%) are inclined to wear a mask while going outside.

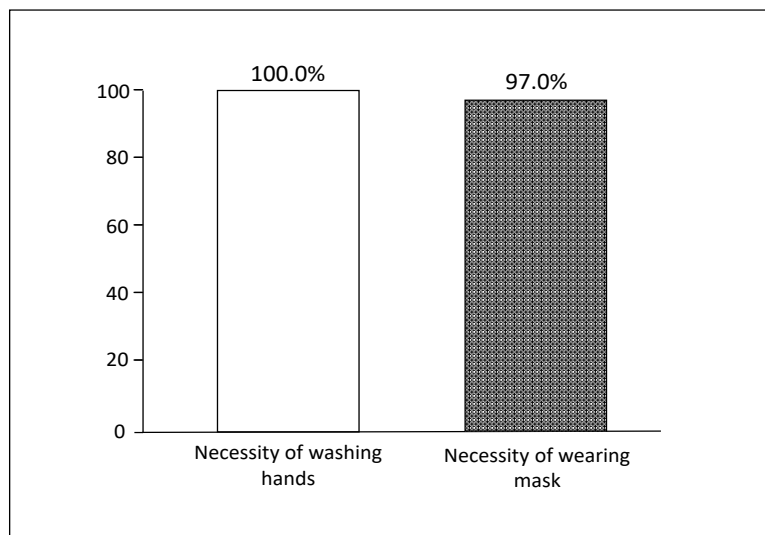


Figure 5: Attitude of the participants towards the preventive measures said to be taken by WHO COVID-19 pandemic

### ***Practice***

Most of the participants washed their hands after returning home (99.7%) and wore mask outside (99.7%) according to figure 6. However, very few of them (38.8%) actually had gone outside in the week before they took part the interview. Moreover, although almost all the participants (99.0%) knew about social distancing, only 57.2% actually practiced it.

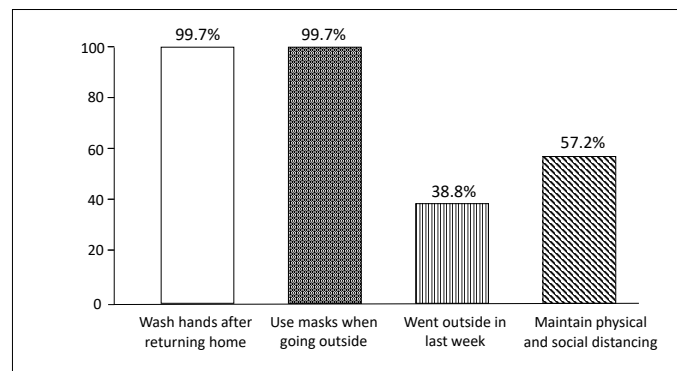


Figure 6: Practice of the participants towards COVID-19 pandemic

The social practice towards the pandemic was passively measured through questioning the participants about their practical experiences. According to that, most of the participants (80.9%) thought that the primary reason for COVID-19 spreading in their region was not maintaining social distancing. Religious gathering was accused by only 23.9% of respondents (table 1). On the other hand, 88.9% participants informed that the primary reason for people going outside in the period of lockdown was to purchase necessary goods including food and groceries, some (80.1%) mentioned unawareness and a substantial percentage (31.7%) mentioned religious praying as a reason of going out.

**Table 1: The social response during pandemic and lockdown**

<b>Question: Why did people go outside in your area during nation-wide lockdown?</b>	
<b>Responses</b>	<b>Frequency (%)</b>
To buy necessary goods	88.9%
As they were unaware	80.1%



To volunteer different causes	58.4%
To collect money from the bank	48.4%
To conduct business	35.8%
For religious purposes	31.7%

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**Question: What was the primary reason for spreading COVID-19 in your area?**

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<b>Responses</b>	<b>Frequency (%)</b>
Not maintaining social distancing	80.9%
Shopping and foraging around market	77.3%
Movement between houses	48.4%
Chatting with friends in tea-stall/other areas	46.9%
Expatriates coming back in the area	29.0%
Religious gathering	23.9%
No visible reason	4.3%

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### **Socioeconomic Consequences**

#### ***Household Income and Expenditure***

This dataset represents 397 households with total 2004 household members. Average family size was 5.05 members. Table 2 summarizes the mean household income and expenditure before and during the COVID-19 pandemic with maximum and minimum income and expenditure. The table shows the mean income before coronavirus pandemic was Tk. 27981.68 and the mean income during the outbreak Tk. 19332.19 while the mean household expenditure before coronavirus pandemic was Tk. 25861.96 and the mean household expenditure during coronavirus outbreak is Tk. 23138.79. Household income in both states is above the national average. Difference between means in both states is statistically significant, when put into two sample t test with unequal variances.

**Table 2: Mean household income and expenditure**

Variable	Mean	Std. Dev.	Min	Max	Two sample t test
Monthly income before outbreak	27981.68	22557.38	250	200000	p<0.05
Monthly income during outbreak	22659.19	19332.23	100	150000	
Monthly expenditure before outbreak	25861.96	18582.4	200	140000	p<0.05
Monthly expenditure during outbreak	23138.79	18755.04	150	150000	

In case of per-capita household income, mean income before the outbreak was Tk. 5992.39 and the mean per-capita household income during the pandemic was Tk. 4900.15. Mean differences are statistically significant according to the two-sample t-test (table 3).

**Table 3: Per-capita household mean income**

Variable	Mean	Std. Dev.	Min	Max	Two sample t test
Per capita Income before coronavirus	5992.39	4935.913	333.33	40000	p<0.05
Per capita Income during coronavirus	4900.15	4326.312	166.67	30000	

Figure 7 shows distribution of per-capita household income before and during coronavirus. Highest decline had been observed at the per-capita income level above Tk. 7,000. At this level, 67% per-capita household income was above or equal to Tk. 7,000 but due to the negative income shocks resulting from COVID-19 pandemic, it fell to only 4%.

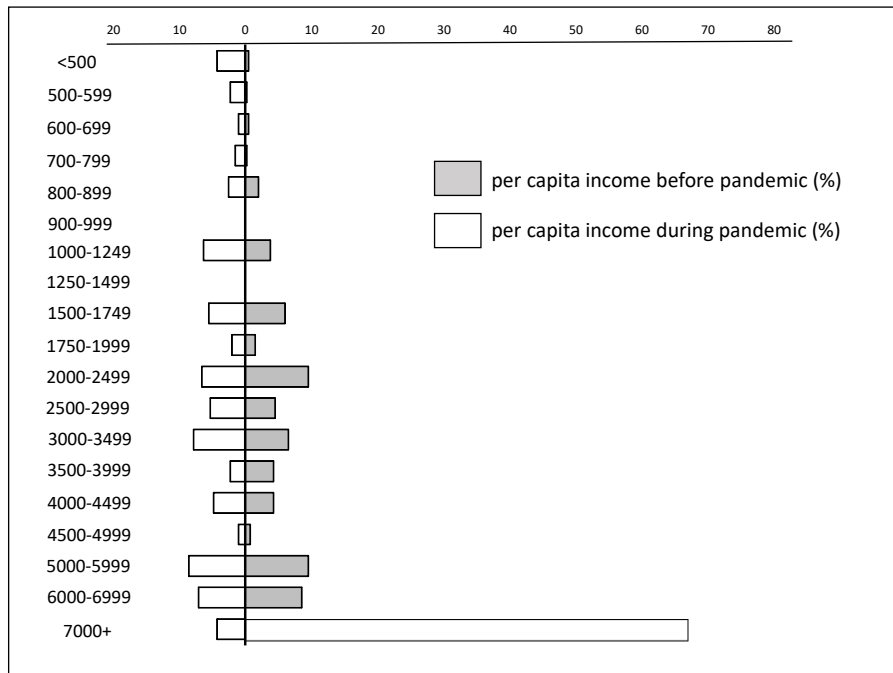


Figure 7: Per capita income of the participants before and during the COVID-19 pandemic

**Support and Accessibility**

*Types of Support*

The support status is seen through three questions: a) receiving support for disinfecting the area, b) receiving COVID-19 test facility, and c) receiving food support. 37.5% of the respondents observed the activity to disinfect their area. Only about 10.8% participants mentioned the availability of the COVID-19 testing facility in their area. When asked about receiving assistance, 33% respondent stated that they received relief during the COVID 19 situation (figure 8).

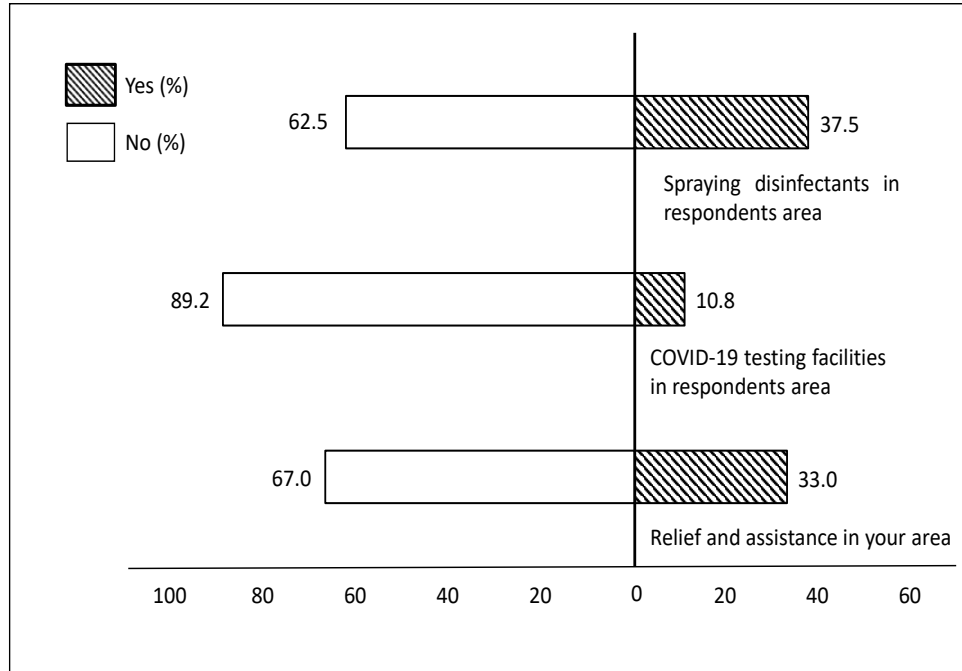


Figure 8: Support in the area of the participants during the COVID-19 pandemic

### *Level of Satisfaction over government support*

After realizing the possible COVID-19 induced primary shocks on the economy and life, Bangladesh government declared a countrywide public holiday to restrict the movement of the people aiming to curb the spread of COVID-19. Other initiatives to serve the same purpose were food distribution, market monitoring and health related activities. Degree of satisfaction with the health-related initiative was only 12.59% and 2.02% found to be highly satisfied. However, 38.04% respondents were somewhat satisfied while 21.16 % were less satisfied and 26.20% were not satisfied. Regarding the food distribution initiative of the government, 25% respondents were completely not satisfied while 21.06 % were less satisfied. However, 38.04% were somewhat satisfied while 15.37 % were satisfied with the initiatives.

**Table 4: Satisfaction over government's initiative on health, food distribution, market monitoring and lockdown (%)**

Responses	Not Satisfied	Less Satisfied	Somewhat Satisfied	Satisfied	Highly Satisfied
1 To what extent you are satisfied with health-related initiatives taken by the government?	26.20	21.16	38.04	12.59	2.02
2 To what extent you are satisfied with food distribution related initiative taken by the governments?	24.94	19.90	38.04	15.37	1.76
3 To what extent you are satisfied with market monitoring initiative taken by the governments?	25.19	19.14	33.00	20.40	2.27
4 To what extent you are satisfied with country wide lockdown?	14.36	10.58	24.94	38.29	11.84

Concurrently, the government tried to ensure a stable supply of food and daily necessities to the people. Talking about the level of satisfaction with the market monitoring activities initiated by the government, 25% of the respondents were completely dissatisfied while 20% were less satisfied. However, 33% respondents were found to be satisfied with the market monitoring initiative and 20.40% were satisfied with the same activity. The scenario in terms of level of satisfaction is a bit different in case of the initiative of declaration of public holiday. Among the respondents, 38.29% were satisfied and 25% were somewhat satisfied with the decision. However, 11% suggested being less satisfied and 14.36% were completely dissatisfied with the decision.

## Discussion

The current study was designed to explore the relevance of the KAP model to understand the COVID-19 pandemic situation by measuring participant's knowledge and outlook towards the pandemic and to understand eventually how those results in their everyday practice. The model demonstrated that knowledge, attitude, and practice measure the extent of a known situation and confirm or disprove a hypothesis that provides new tangents of the reality. Knowledge plays a significant role in shaping attitudes and practices in a pandemic (Yap et al., 2010). However, in reality, a strong presence of intersectionality and multidimensionality-construction of knowledge shapes the individual attitude and practice towards tackling pandemics like coronavirus.

Knowledge plays a significant role in shaping attitudes and practices in a pandemic (Yap et al., 2010). Similarly, practice is not only shaped by knowledge, but also by the infrastructures and economic, cultural, environmental factors (Farmer, 1997; Launiala, 2009). In the current study, in some instances, the knowledge of the participants was translated into attitude and practice. For example, almost all the respondents were found to have knowledge about the necessity of washing hands to prevent COVID-19 transmission and have a positive attitude about the fact. This attitude is translated into practice when it was observed that almost all of them actually washes their hand after returning home from outside. However, a major portion of the respondents were found to go outside due to unawareness. Likewise, primary reasons for spreading COVID-19 in the areas where the respondents live as they suggested were not maintaining physical distancing, shopping, and foraging around market, movement between houses, chatting with friends in tea-stall/other areas, expatriates coming back in the area, religious gathering. Although they knew about the way this virus spreads.

In the most cases, linear translation was not observed. For example, almost all the respondents knew about the importance of social distancing. However, most of them did not maintain physical distancing which they mentioned as the major cause of outbreak in their locality. In addition, half of the respondents had 'knowledge' on the spread of the disease. Interestingly, almost all of them had correct attitude towards preventive practices. Here the question arises, how it is possible for the additional respondents who actually have been observed outside of the 'knowledge' domain or who do not have the 'knowledge' to have a correct

attitude? However, almost all the respondents had knowledge of isolation. These observations put into question the linearity of knowledge, attitude, and practice (KAP) survey and demand for a possible explanation. Interestingly, this controversy is not novel. Over the years many researchers have criticized the accuracy of data collected through KAP surveys and its overall applicability (Cleland 1973, Pelto & Pelto, 1997, Launiala 2009). Schopper, Doussantousse & Orav (1993) mentioned the KAP as a poor method when it comes to obtaining information about sensitive issues, such as traditional treatment and prevention practices, and sexual behaviour. Nichter (2008) argued that although KAP is useful in assessing people's knowledge about practice in general, it cannot explain the heterogeneity of daily practices and the reason behind it. Due to the presence of non-linearity among the variables, KAP model partially fails to explain the coronavirus pandemic situation. This was apparent in some cases where researchers showed that even with proper knowledge and attitude towards 'social distancing' during the COVID-19 pandemic, maintaining that is 'impossible' for urban slum dwellers in Bangalore, India (Wasdani & Prasad, 2020). On the contrary, in Bangladesh, social structures and beliefs can lead to taking collective decisions over a population where an individual can 'just follow' without having a logical background. In these settings, correct attitude and practice can exist without knowledge. However, this correctness involves a systemic process of the construction of knowledge.

The social construction of knowledge involves a process whereby people create an objectively factual and subjectively meaningful reality through interactionism (Berger & Luckman, 1966). This process involves the dissemination of information through multiple sources. For example, this study reveals that most of the respondents heard about coronavirus from Facebook while others, though a small portion compared to that of Facebook, heard from Television, Newspaper, and hearsay. The role of agency and proper knowledge seem to be non-functional in controlling the spread of coronavirus outbreak in Bangladesh. Facebook is playing the biggest role in shaping knowledge here.

This situation has created a parochial space to understand the coronavirus situation with the KAP model. It is difficult to trace any overt cue about this objectively factual information that respondents claimed to have received from the sources. However, the information available on the above-mentioned sources disseminated from WHO and scientific journals without having any scientifically

demonstrated truth and without any agency. Concurrently, the cloud of information, misinformation and disinformation has created a freedom of choice within the domain of ‘infodemic’ for people that translated into practice (figure 9). The question is, how does this information come to be accepted as real? It is evident that the KAP model is easy to conduct, the results of this method are relatively easy to interpret given the fact that there is a strong presence of scientifically demonstrated knowledge (Launiala, 2009; Bano, AlShammari, Fatima & Al-Shammari, 2013; WHO, 2012).

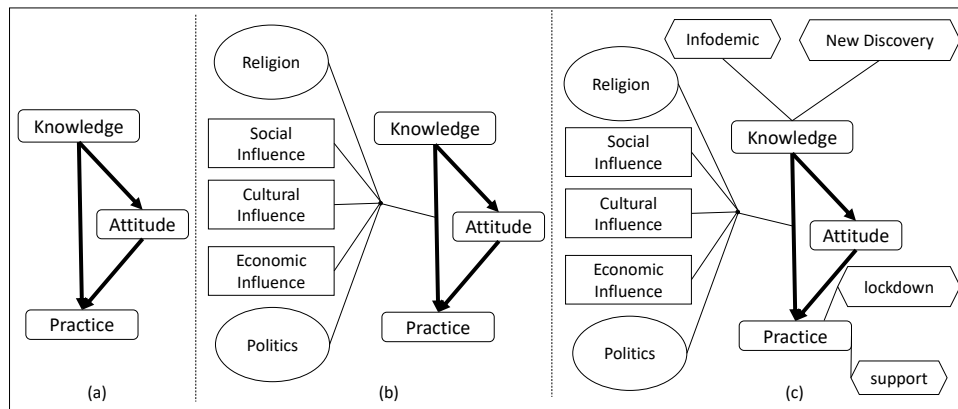


Figure 9: (a) the conventional KAP model (b) Many authors criticize the conventional model because it fails to recognize the socio-economic, political, and cultural dynamics that affects the model. (c) In case of COVID-19 pandemic, those influencing factors were assisted by fluctuating novel scientific discoveries and social media induced ‘infodemic’ to rise confusion on correct knowledge, as found by the current study. Many imposed measurements like lockdown and support and accessibility also affected practice of the participants.

With the evolving nature of scientifically demonstrated truth, the standard KAP model within the existing social, political, and economic settings of Bangladesh where supposition and disposition of the different forms of behavioural pattern shape individual’s attitude and practices needs to be re-examined by internalizing heterogeneity to explain pandemic like coronavirus-induced knowledge paradigm.

## Conclusion

This study questions the modality of the KAP model to understand the coronavirus situation in Bangladesh. Especially, this study is subjected to the constraints of the variables considered. It finds the KAP model trivial to explain



the heterogeneity of the nature of outcome. Concurrently, KAP shows limited success to explain the behavioural pattern. Along with this, in a situation when knowledge is itself evolving and under-construction, KAP model faces trouble to grasp the complexity of evolving reality. It reveals the impact of the pandemic on the life and livelihood of the respondents. However, it is difficult to map the relation of negative income shock with attitude and practice. KAP model, in this regard, can be reconsidered by incorporating these types of factors. In this regard, the study finds an amalgam of factors while explains relationship among knowledge, attitude, and practice. However, this study further suggests incorporating intersectionality and multidimensionality and the extent of knowledge within the framework of the KAP model. By showing some limitations of the KAP model, this study finally suggests going beyond the KAP model (if necessary) to widen its scope for further improvement.

**Disclaimer:** The views and opinions expressed in this research are those of the authors and not relevant to the opinions and views of the Embassy of Japan in Bangladesh.

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