


# The Experiences and Perceptions of Health-Care Workers During the COVID-19 Pandemic in Muscat, Oman: A Qualitative Study

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## Abstract

**Introduction:** Predominantly, studies on COVID-19 report quantitative data that often miss the social implications and other determinants of health. The objective of this study was to explore the experiences and perceptions of health care workers (HCWs) in primary health care in the management of COVID-19 with respect to medical response experiences, socio-cultural and religious reforms, psychological impressions, and lessons learned. **Methods:** This was a qualitative study using an empirical phenomenological approach. Six focus group discussions were conducted across various stakeholders working frontline in the management of COVID-19 (managerial, public health/field/community and primary care health centers). They participated in semi-structured, in-depth group discussions from 11th to 20th May 2020. All discussions were audio-recorded, transcribed verbatim and analyzed using thematic analysis. **Results:** Forty participants were involved in this study. Three themes emerged related to the medical response experiences, including the rapid re-structuring of the PHC services, use of technology and challenges of working on COVID-19. Perceptions on the socio-cultural and religious reforms included changes in social and religious norms, and anticipated gaps in accessing health care among the vulnerable groups (elderly, expatriates, and individuals with low economic status). Perceptions on psychological disturbances were themed as consequences of social distancing, management of dead bodies, exhaustion among the health care workers, and risk of exposure. Finally, lessons learned were centered around building on the existing epidemiological and public health capacities, improving access to health care and overcoming resistance to change. Most participants labelled their experience in COVID-19 as an “experience of wisdom” in which learning was a continuous process. **Conclusion:** This qualitative study amongst primary HCWs revealed certain aspects of response to COVID-19 in Muscat, Oman. Results has unfolded various aspects of COVID-19. The situation was perceived by primary HCWs as a new experience that challenged the primary health care; enforced the utilization of public health/epidemiological skills, and linked to unfavorable socio-religious and psychological events.

## Keywords

qualitative, COVID-19, primary health care, psychological, responses, Oman

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## Introduction

The World Health Organization (WHO) has alerted the world and declared Coronavirus disease 2019 (COVID-19) as a public health emergency that require drastic interventions.<sup>1</sup> Notably, the disease emerged in Wuhan city in December 2019 and spread throughout the world.<sup>2</sup> Since then, the virus has caused serious illness, death, and social disruption around the world. At the time of this writing

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(September 2020), there were 26 145 350 confirmed cases of COVID-19 and almost 866 499 deaths worldwide.

Currently, there is a predominance of quantitative research in the literature regarding the epidemiological, immunological, and clinical characteristics of COVID-19. Although beneficial, a limitation of quantitative approaches is that it tends to miss the socio-cultural consequences of diseases and other determinants of health and behavior. In this regard, qualitative approaches are ideal for capturing social responses to this pandemic and ultimately unfold realities around individuals/communities socio-economic, and religious norms.<sup>3-7</sup> Most reported qualitative studies related to COVID-19 comes from China<sup>4,6,8</sup> in which results may not be generalized to an Arabic speaking country namely Oman where the culture and health care system are different. Hence, it is important to undertake qualitative researches on COVID-19 to address these gaps in the literature.

As of 16th September 2020, there was 86 380 confirmed cases and 705 deaths in Oman. Several interventions were undertaken across the various governmental and private sectors at high level supreme committee, and governmental level. These interventions may have caused a social and/or financial impact that require investigation.

The Ministry of Health in Oman activated the surveillance and control measures in all the international and national ports of entry to Muscat, the capital of Oman. Guidelines and flow charts were put in place and disseminated across all sectors. Additionally, health education and mass media campaigns were developed to prevent cross-infection. Moreover, capacity building and training activities continued for health workers in private and governmental institutes. These included infection control measures, taking swabs, the clinical presentation of the disease and follow up plans. A bespoke web based platform was developed for reporting, management, monitoring, and follow up of the COVID-19 cases.

Notably, several studies showed that the frontline health care workers (HCWs) were at risk for mental and stress related problems during crisis.<sup>9</sup> A recent cross-sectional study from Iran reported that 53.0% of HCWs were burned out in the pandemic COVID-19 period.<sup>10</sup> Another review reported higher ranges of burned out among physicians specifically for emotional exhaustion, depersonalization, and low personal accomplishment.<sup>10,11</sup> Additionally, social isolation, particularly when staff were exposed to prolonged quarantine, and the fear of infecting their family or having an infected family member were reported as reasons for higher rates of stress related illnesses in HCWs during crisis.<sup>12</sup> Moreover, staff may be worried due to feelings of uncertainties faced with critically ill patients.<sup>13</sup>

Hence, the purpose of this study was to explore the experiences and perceptions of the frontline health care workers (HCWs) in the management of COVID-19 with respect to:

1. Medical response experiences
2. Socio-cultural and religious reforms

3. Psychological impressions
4. Lessons learned

## Methods

### *Setting and Conceptual Framework*

The present study adopted a research design that was comprised of 6 focus group discussions across different disciplines to explore perceptions from HCWs at primary care level in Muscat governorate, Oman. Focus group discussions were chosen over in-depth interviews because it was felt that the dynamic group interactions would allow better insights across group disciplines.<sup>14</sup>

### *Participants*

Participants were HCWs involved in the management of COVID-19 at different managerial levels. They were recruited through purposive and snowball sampling in which the principal investigator (TA) recruited the initial subjects to be in a study and then asked them to recruit additional subjects. Family physicians, general practitioners, nurses, health managers, administrators, and public health experts involved in clinical or field or technical or administrative management of COVID-19 were eligible. This multi-disciplinary approach was adapted to ensure that the discussions are comprehensive and rigorous. Variation in years of work experience, involvement in the management of COVID-19, technical expertise were all considered to obtain a sufficient diversity within the focus group discussions. This variation was viewed by the research team as effective in stimulating discussions and provoking positive group dynamics. The aim was to recruit 6 to 10 participants per focus group.<sup>14</sup> Participants were grouped according to their managerial responsibilities. The first FGD was carried out with the highest-ranked managers/directors in the Muscat region. The second and third FGDs involved participants from the field/community (isolation/quarantine services, surveillance at ports of entry to Oman airports). The rest of the FGDs were conducted with participants across different clinical disciplines within the local PHC setting. An information sheet describing the study was shared with the participants before the FGDs. A follow-up telephone call was arranged to agree on a time and place for the discussions. All interviews were conducted in English since it is the common working language in the health sector in Oman.

### *Methodological Approach*

Different locations were utilized to conduct the discussions including the regional COVID-19 operational center (3 FGDs), directorate of health services (2 FGDs), and a health center (1 FGD). A semi-circle sitting arrangement was arranged (1.5-2 meter distancing between the participants) at a

**Table 1.** Semi-Structured Interview Topic Guide Questions.

	Questions
Opening	1. Can you explain your role in the management of COVID-19? 2. What activities/responses/processes you have taken to achieve your objectives in the management of COVID-19?
Introductory Transition	3. What have you achieved within your scope of specialty? 4. In relation to dealing with COVID-19 in PHC and community, what shifts have you encountered in relation to: Health care services Social and religious beliefs Psychological health Un-expected events
Key	5. What were the consequences of social distancing and interventions to contain the spread of the disease on individuals and families? 6. What activities/changes that took place NOW and you think it should stay/integrated within PHC post COVID? 7. What are the challenges you faced in the management of COVID-19? 8. Going back to all responses, what do you think you would've done differently? Why? 9. What were the lessons you learned from your involvement in managing COVID-19?
Ending	10. Is there anything else you would like to add?

time and date convenient for the participants and researchers. All participants were asked to wear masks and adhere to the infection prevention measures as per the national guidelines.<sup>15</sup> The focus groups were carried out from 11th to May 20th 2020 and lasted between 45 to 150 minutes. Discussions were led by a trained facilitator (TA) and assistant facilitator (SH), audio-recorded (ML) and subsequently transcribed. The assistant facilitator (AA) took notes during the discussions. Discussions continued until data saturation (no new ideas emerged) was reached. Confidentiality was assured by using numbers instead of names (eg, P1, P2, etc.) and any identifying information was removed from the transcripts. All audio recordings and transcripts were saved on a password-protected computer. Throughout this study, the Standards for Reporting Qualitative Research guidelines were adhered to.<sup>16</sup>

### Topic Guide

A semi-structured topic guide containing prompt questions to elicit participants' perceptions on the medical response experiences, socio-cultural and religious reforms, psychological disturbances, and lessons learned was developed see Table 1.

The topic guide was reviewed by the research team and pilot-tested in a mixed group of health professionals. Changes were made to ensure common understanding and dynamic discussions.

### Analysis

Data collection occurred concurrently with data analysis. This qualitative research was based on an Interpretative Phenomenological Analysis (IPA) method of understanding a group's perception of a particular topic using purposeful sampling.<sup>17</sup>

The audio recordings were transcribed verbatim by (EG) and (AG) and reviewed by the research team for accuracy.

The analysis was done manually used followed thematic content analysis<sup>14</sup> in line with the key aims of the study. Initial transcripts were read several times by authors (TA), (FA), and (ZA) followed by open coding, grouping, and categorizing data according to emerging themes. A coding scheme was then developed based on significant recurrent themes (ML and MA). Themes and sub-themes were cross-checked independently by 2 other researchers (FF) and (AL). The final themes and sub-themes were revised by a qualitative researcher (PK) as a further measure of inter-rater reliability. Transcripts were re-visited whenever conflicting interpretations of themes occurred, and an agreement was reached after thorough discussions and consulting an independent researcher (EG).

### Ethics

The study was approved by the Regional Research and Ethical Review Committee, Ministry of Health, Muscat, Oman. The study objectives and voluntary nature of the study were explained to participants, and informed consent was obtained.

### Results

Forty HCWs participated in the FGDs. Nine, 6, 5, 6, 6, and 8 participants attended the first, second, third, fifth, and sixth FGDs, respectively. All of them were involved in the management of COVID-19 across Muscat. More than half (n=22, 55.0%) were doctors, of which 7 were additionally mid-level managers at central (ministerial), regional, and

**Table 2.** Participants Characteristics.

	N (%)	Gender Males:Females	Mean Age (SD)	Mean years of experience (SD)	Education
1	9	1:8	49 (2.3)	12 (3.2)	Doctors 5 Nurses 2 Public health experts 1 administrator 1
2	6	1:5	45 (3.1)	9 (5.3)	Doctors 4 Nurses 2
3	5	1:4	40 (2.1)	8 (4.5)	Doctors 3 Nurses 2
4	6	0:6	43 (4.1)	10 (3.2)	Doctors 5 Nurses 1
5	6	0:6	42 (3.2)	9 (4)	Doctors 3 Public health experts 1 Dietician 2
6	8	2:6	43 (4.1)	9 (4)	Doctors 2 Nurses 1 Public health experts 2 Pharmacist 3

departmental levels. The remaining participants were nurses (n=8, 20.0%), public health experts (n=4, 10.0%) or pharmacist (n=3, 7.5%), dieticians (n=2, 5%), and administrators (n=1). The majority of the participants were females (n=35, 87.5%). Mean + SD years of work experience was 9 ± 4 (range=5-22) years with family physicians having the most years of experience within the group (Table 2). Multiple themes were identified across the studied objectives.

### Medical Response Experiences

Three themes emerged related to the public health and medical response experiences, including re-structuring of PHC services, use of technology and challenges with working in COVID-19.

#### Theme 1-1: The Rapid Re-Structuring of the PHC Services

Overall, the focus of practices within PHC shifted from being clinically driven to a public health centered setting where HCWs participated in disease prevention, surveillance and control “We changed from mostly clinical to public health and community centered health centres” FGD1\_P8. All participants expressed the stress of re-structuring the clinics as per the infection prevention and control guidelines “We had to divide the clinics into COVID-19 and non-COVID clinics” FGD4\_P3. All face to face clinics related to the management of chronic diseases were suspended “Chronic clinics were withheld, and we asked all patients to call if they needed an urgent medical attention” FGD5\_P3. Alternatively, telephonic consultations and virtual communications were initiated for individuals with comorbidities “Phone consultations

were conducted every day to follow patients especially those with chronic diseases . . . and at sometimes, virtual communications were also performed” FGD6\_P1. All primary care guidelines were re-visited and changed to meet the national COVID-19 management guidelines “Referral guideline were changed to be more responsive to COVID” FGD4\_P4. To ensure that HCWs were protected, capacity building activities on adhering to the infection prevention and control protocols and audits were conducted fortnightly “Trainings and audits on infection prevention and control measures were emphasized” FGD1\_P3. Additional exhausting new responsibilities emerged to cater for COVID-19 testing, follow up and isolation services “Managing isolation facilities was an exhausting experience” FGD4\_P3.

#### Theme 1-2: The Enforcement to Use of Technology

Integrating information technology support was viewed as a cornerstone in the management of COVID-19 by all participants “using different technologies in COVID-19 was the cornerstone to speed up and maintain our service delivery” FGD6\_P6. Despite initial resistance from some HCWs to use technology linked primary care consultation services (phone calls, phone applications, virtual platforms, and online services), all HCWs acknowledged the importance of using such tools to keep both staff and patients safe “sudden change in routine work was difficult especially with the use of new technologies, however, one has to adapt and aim to protect all people” FGD1\_P3, and “WhatsApp services were important to maximise physical distancing” FGD5\_P4. While most participants across the groups were unaware of the existence of the Geographical Information System



(GIS) for data analysis of the positive COVID-19 cases, participants from the managerial group thought it was a useful tool for planning and executing interventions to control the spread of the virus *“Introduction of the GIS was an extraordinary experience that enhanced our epidemiological skills to control the virus spread”* FGD1\_P4.

### Theme 1-3: Challenges of Working in COVID-19

It was evident that the responsibilities were pervading, but the human resources were static. This imbalance created additional burden on staff in dealing with COVID-19. The unexpected events including dead bodies brought to the health centers, shortages of Personal Protection Equipments (PPEs), and language barriers with the non-nationals caused further reorientation of services *“Management of sudden unexpected events was an interesting experience, every day we learned something”* FGD5\_P4. Majority of participants wished to see more private-public partnership *“Role of the private sector and expected contribution was not up to our expectations. . . more was required”* FGD4\_P1. Few participants especially from FGD1 highlighted that some response/interventions to control COVID-19 might have jeopardized the access to health care. The emphasis on safety measures and physical distancing may have prevented sick individuals from accessing health services *“unexpected consequences of withholding chronic diseases and receiving less number of patients may have discouraged sick people to seek medical attention. . . we really need to look into this”* FGD1\_P2. Other participants from the community field group thought that dealing with community rumors and misleading information was a big challenge *“everyone was saying something about the diseases especially in lock-down areas, but we managed to run several programmes to educate the public about the COVID-19”* FGD3\_P4.

## Socio-Cultural and Religious Reforms

### Theme 2-1: Social and Religious Practices

Participants felt unhappy about having to stay away from their parents and families. The social distancing for many of the participants was perceived as protective, but extremely hard, especially for those who used to meet up in social gatherings *“I feel sad to stay away from my mother. . . she is the most important person to me”* FGD6\_P4, *“I understand that social distancing is the only solution for now, but it is so difficult”* FGD5\_3 and *“I get sad every weekend as I miss meeting my sisters and brothers they way we used too”* FGD5\_1. On the other hand, a small number of participants thought that staying home with children was a good opportunity for effective communication and bonding *“I was happy that I was able to spend more time with my kids at home and discuss their plans”* FGD4\_P3.

Most participants agreed that having to ban prayers in mosques was extremely challenging. This was experienced as painful, especially for male participants who were used to pray their 5 daily prayers in the mosques within their neighborhood *“I really get emotional and feel pain when I hear the call for prayer and can't be in the mosque. I miss praying in the mosque and meeting my fellow neighbours”* FGD4\_P2.

### Theme 2-2: Vulnerable Groups (Elderlies, Expatriates, and Individuals With Low Economic Status)

Participants in the field and community group showed their sympathy to elderlies who had to stay alone with limited support for their activities of daily living *“there were elderlies who were in a bad situation because they had no one visiting them for daily support”* FDD3\_P4. Other participants from the same group expressed concerns for some expatriates who were not aware of ways to access the health care, especially those who were living in poor socio-economic conditions. However, every effort was taken to mitigate this by improving language barriers, living conditions, and access to health services when needed *“expatriate domestic workers were very much vulnerable as they couldn't understand what was going on and couldn't afford paying the private or public health sector”* FGD2\_P5. Additionally, there was a concern among the participants regarding the consequences of lock-downs on the individuals with low socio-economic status especially those who worked in transportation, fishing, and non-fixed jobs (dependent on daily income) *“poor people got affected with the interventions against COVID especially taxi drivers, fisherman, and un-employed individuals who lived in areas of lock-downs”* FGD1\_P9.

## Psychological Disturbances

### Theme 3-1: Consequences of Social Distancing

Staying home was described as being depressing, especially for participants who practiced home quarantine or isolation *“when I was under isolation for 14days, I felt depressed and unhappy most of the time”* FGD5\_P2. Social distancing to many participants caused an abrupt change in their social norms, and caused stress when they were unable to visit senior members of their family *“I was sad for not visiting my mother for two months. I missed her hugs and prayers”* FGD6\_P7. Furthermore, inability to travel with family and children the way many participants used to was disappointing *“we stay home and can't travel as before, we are all frustrated”* FGD2\_P5.

### Theme 3-2: Management of Dead Bodies

It was an intense experience for all participants to deal with dead bodies of different nationalities and religion in this

exceptional COVID-19 situation. The majority of participants who worked in the field/community and health centers were devastated to get involved in unexpected deaths with no experience on how to handle the bodies, bury them according to their religions and beliefs and mostly how to honor them *“It was the first time to see a non-national/expatriate person brought dead to the health centre, we all panicked and got frustrated not knowing what to do or whom to call”* FGD4\_P3, and *“dealing with the burial of the dead bodies was so upsetting as religious burial rituals and common practices from washing to shrouding the bodies to honouring formalities were all violated”* FGD5\_P4.

### Theme 3-3: Exhaustion Among the Health Care Workers

The unexpected increase in workload was reported as exhausting. Specifically, participants who worked at the airport clinics were working for very long hours *“we had to work for more than 12 hours continuously due to shortages of staff. This was an overburden to us”* FGD2\_P1. Infections among HCWs was sad and tiring as it caused additional load on the existing shortages of staff *“when our colleagues got infected, we all suffered physically and emotionally”* FGD2\_P4.

### Theme 3-4: Risk of Exposure

All participants felt the fear of transmitting the virus to their families at home *“it’s scary when we think that we may take the virus home to our families and children”* FGD4\_P5. Moreover, the shortages in the infection prevention supplies at work aggravated our stress *“shortages in safety supplies was so stressful, and at times we felt angry for being at high risk”* FGD5\_P1.

## Lessons Learned

### Theme 4-1: A Comprehensive Public Health Approach

Participants across all groups highlighted the effectiveness of a comprehensive and multi-sectoral approach in the management of COVID-19 pandemic *“we needed to involve everyone and sectors including the community”* FGD4\_P4. Participants, especially in the managerial group, stressed the need to develop: (a) capacities in public health, (b) clinical skills, and (c) infrastructure to improve access of services (geographical and psycho-socio-economic access) *“it is crucial to improve the skills of our HCWs to enhance their preparedness and response to such situations”* FGD1\_P9.

### Theme 4-2: Overcoming Resistance to Change

Overcoming the resistance to change on a daily basis was acknowledged by all participants as an *“experience of*

*wisdom”* during this pandemic *“major and abrupt changes happened in our daily work routines that we tried not to resist and learn to accept them”* FGD4\_5, and *“we learned to become structured and wise with our decisions”* FGD6\_P2.

## Discussion

This paper described lived experiences from HCWs in Muscat governorate in battling COVID-19 to safeguard the community from the virus. A qualitative approach was adopted to address the gap in the literature about insights on the clinical, social, cultural, economic, and religious aspects of the COVID-19 pandemic in Oman. This approach, although limited in the literature, has been encouraged in the epidemiology of epi- and pandemics.<sup>4</sup>

Similar to all countries worldwide, the health care system in Oman responded to COVID-19, as recommended by the WHO.<sup>1</sup> Identified themes from the participants’ perceptions highlighted the physical and clinical re-structuring of the PHC services and implementation of the national mitigation plans to meet the international guidelines in the management of COVID-19.<sup>1,15,18</sup> Similar to many reports, the use of technology was enforced through the use of GIS in managing COVID generated data,<sup>19</sup> telemedicine, and virtual communications.<sup>20</sup> Challenges were linked to the insufficient infectious disease and public health expertise in the field level, and intensive work load that drained HCWs physically and emotionally.<sup>6</sup>

Notably, the population of Oman is 4631060, in which 41% are non-nationals/expatriates.<sup>21</sup> It was noted that the spread of the disease increased at a rapid rate among the expatriate community. The rapid increase of COVID-19 within this population created a growing need for collaboration between public and the private health sectors to ensure Universal Health Coverage (UHC) defined as equity and social justice to accessing (geographically and socio-economic) health care services.<sup>22,23</sup> To improve access to health services, all expatriate in Oman were offered COVID-19 services free of charge, including isolation and hospital care.

The Omani people are very much attached to families and enjoy extended social gatherings.<sup>24</sup> Due to the social distancing and isolation, participants from this study felt detached from their families leading to negative affect and feelings of helplessness. Moreover, the majority of HCWs in PHC were females who had additional responsibilities of caring for children at home and working for longer hours was overwhelming. Additionally, changes in the religious practices were unexpected and emotional, especially those related to caregiving, burial rituals and prayers in the mosques.

Several studies have looked at the financial implications of this disease on people and communities.<sup>25</sup> Individuals who lived in low socio-economic conditions were more

vulnerable to the disease and interventions of isolation and lock-downs may have restricted the mobility of this group of people leading to increased financial depression.<sup>26</sup> More work is needed to explore the financially affected individuals in Oman and the interventions taken to protect them socially and economically.

Psychologically, many participants reported psychological disturbances due to overwhelming responsibilities. Dealing with uncertainties and lack of confidence in crisis may lead to serious psychological consequences.<sup>27</sup> This was aggravated by encountering emotional situations such as dealing with dead bodies, fear from getting infected or infecting others and lack of psychological support.<sup>6</sup> Therefore, integrating psychological and mental health services for HCWs working in COVID-19 is essential.<sup>5,13</sup>

Willingness to change was considered the key to effective responses to COVID-19 and dealing with COVID-19 was described as an experience of “wisdom” with many lessons learned on a daily basis.

There were several limitations in this study, including the timing of the FGDs may not have helped the participants to express their perceptions fully as they were extremely busy in their workplaces. Also, it should be noted that the facilitator (TA) had worked with most study participants for several years. Thus, familiarity with all participants may have introduced bias, with participants providing socially desirable responses. However, efforts to minimize potential bias were taken through firm FGDs facilitation skills and data collection.<sup>14</sup> Additionally, the views reported in this study are of HCWs working in PHC and thus, similar work is needed for hospital and community settings. Other limitations may be attributed to the nature of the FGDs namely the mixed groups discussion in which capturing the viewpoints of all participants may be jeopardized. However, group dynamics are well appreciated in this setting as participants felt comfortable discussing common concerns.

Also, views from categories such as administrators (n=1) [who liaised with the stakeholders to provide social support when needed] and dieticians (n=2) may not be generalizable due to their low representation. Finally, all participants have a very good working knowledge of English, but their responses may have been limited since the interviews were not conducted in their mother tongue, Arabic.

## Conclusions and Implications for Practice

This research is a qualitative study that looked at the lived experiences of disease from frontline HCWs in health care settings of Muscat Governorate in regards to clinical and public health perceptions in COVID-19 (including determinants of health). Irrespective of the experiences, participants expressed that COVID-19 was: (a) a new experience that reformed the primary health care system; (b) a dynamic

disease that enforced the utilization of public health/epidemiological skills, (c) linked to exhausting and unfavorable socio-religious and cultural events, and (d) a complex situation that uncovered the realities around accessing primary health care. Effective interventions in COVID-19 should be planned to incorporate psychological care, especially for HCWs who are exposed to physical and emotional stress.

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## Authors' Contributions

TA is the principal investigator in charge of the project. All other authors were involved in designing the study. Data collection and analysis of results was assisted by HL, AA, SH, AG, MA, SA, PK, ML, AL, and AS. TA and EG prepared the initial draft of the manuscript, and all other authors have contributed. All authors have critically reviewed and approved the final version of the manuscript.

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