

Review Article

Logical Framework Approach a Platform for Integrating the Mental Health and Nutritional Care for Controlling the Covid-19 Pandemic

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Abstract

Coronavirus infection (COVID-19) is spreading rapidly in the world beyond the health care capacity. The World Health Organization (WHO) has announced an emergency state that needs quick and effective actions. In the lack of specific medicine and vaccine, integration of mental health and nutritional care in the platform of a powerful managerial technique named the “Logical Framework Approach” (LFA) could be helpful for successful control of this pandemic. The strengths of the LFA for coronavirus management program are stakeholders’ involvement, integrative teamwork in research and medical procedures, as well as Inter-sectoral cooperation. The related organizations like WHO and ministries of health of every country could easily adopt this approach and act more efficiently to manage this pandemic.

Key words: *Coronavirus; COVID-19; Logical Framework Approach; Mental Health; Nutrition; Pandemics*

Coronavirus disease 2019 (COVID-19) pandemic has raised serious concerns about health care capacity worldwide. The spread of COVID-19 was so fast that nearly all countries are engaged by its infection (1). Although, many laboratories, research institutes, and universities worldwide are working to discover specific treatments and vaccines for COVID-19 infection, it is spreading among the people .

In addition to health and medical issues, coronavirus infection and its related death have many psychological consequences for the patients and their families (2). Additionally, mental health and nutritional status of patients may interact with treatment of patients, and may take role in prevention of the infections and management of the pandemic (3). However, mental health and nutritional status of patients with COVID-19 infection are overlooked and urgent research and action in these fields are needed .

Furthermore, coronavirus infection has induced a great economic burden to the governments (4). Hence, countries and companies start to spend money and act against coronavirus infection. However, the coronavirus

prevention programs used by some countries have not been effective so far. One reason for this failure could be lack of the systematic view in some policy-makers and not engaging all stakeholders and related expertise. Hence due to importance of nutritional care and mental health in prevention and treatment of the disease, we aimed to write a narrative review on the “Logical Framework Approach” (LFA) as an overlooked platform for integrating mental health and nutritional care into the management programs for covid-19 infection. In this emergency condition of pandemic, we believe that integration of nutritional and mental care to the regular medical care of coronavirus infected patients would be cooperative.

We choose to review the LFA because it is a powerful management method with capacity of analyzing the hierarchy of problems and integrating the solutions to achieve the goal. Hence, we decided to write this narrative review to help researchers and policy-makers in their programs for controlling the COVID-19 pandemic.

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Integration of mental health to the medical procedures for coronavirus treatment

We are at beginnings steps of the new coronavirus pandemic. However, based on the literature, similar pandemics of SARS, MERS, and Ebola, the infection has serious psychological consequences for the patients and their family, in addition to medical problems (5, 6). Several studies have reported the short-term and chronic psychological consequences of previous coronaviruses related with severe anxiety, depression, distress and post-traumatic stress disorders (5-7). Furthermore, anxiety in critically ill patients will provoke the pathways of inflammation (8). On the other hand, decreasing anxiety and depression in patients may enhance the immune system and similarly may be effective in treatment of coronavirus patients (9). Hence, integration of mental health care to the regular medical treatments could be effective for the new coronavirus patients .

Integration of nutritional care to the medical procedures for coronavirus treatment

Nutritional and dietary factors may help the coronavirus infected patients in two mechanisms. One, by decreasing the inflammation pathways in the respiratory system, and second by enhancing the immune system (10, 11). Knowing the immunosuppressant effect of protein-energy malnutrition in critically ill patients, the role of nutritional support for coronavirus patients in ICU wards is highlighted. Previous studies suggest that dietary anti-inflammatory factors and antioxidant nutrients such as vitamin C, vitamin D, vitamin E, omega-3, beta-carotene, and selenium and zinc may enhance the immune and respiratory systems (12). Accordingly, integration of nutritional interventions could be effective in treatment of the new coronavirus infection.

LFA could be helpful in Coronavirus management programs

The LFA is a powerful project management tool with pervasive use in many subject areas including medical and health projects (13). LFA is a managerial approach for implementation, achievement, and monitoring of any program including projects in health care systems (14). While many companies and agencies are now using this approach in managing their projects, its application is overlooked in health care programs. The WHO, governments, universities and institutes could easily adopt this approach and act more efficiently to slow down the spread of coronavirus. Therefore, we aim to introduce this management approach here .

The LFA for coronavirus pandemic management may include five key analytical and logical elements to help integrative actions (15-18):

1. Problem analysis: Is the process of finding the core problem (rapidly spread of coronavirus in the world) causes and effects related to coronavirus infection. Furthermore, priorities are determined. This technique is similar to the problem tree analysis (16).
2. Stakeholder analysis: Is the process of identifying any individual, group, organization or system that

could help in coronavirus control project or could be suffering from the coronavirus control project. The brain storming technique can be used to identify the stakeholders. The project manager also can map the interest & power matrix of stakeholders separately outside the LFA matrix (17).

3. Analysis of objectives: The main objective should be determined according to the core problem. Then the main objective should be broken down to the smaller and more manageable objectives in order to achieve the goal. The hierarchy of objective could be plotted like an objective tree (16).
4. Analysis of strategies: Identifying and comparing different solutions for coronavirus issue in order to control the pandemic (18). These strategies in coronavirus crisis may include community-based education, Regulations imposed by governments, encourage quarantine if necessary, Vast educational programs, TV programs & advertisements, Early detection and isolation of positive cases and People they've contacted, coronavirus vaccine development program, coronavirus medicine development program, Promoting mental health, nutritional status and complementary medicine (19, 20).
5. Analysis of the other factors: The process of identifying any systems, ethnics, countries, societies, religious, cultures and the other parameters as social, political, economical, legal, environmental and technological, which have the effects on the pandemic; and analyzing the symptoms to find the causes, and decreasing the problems and then control it (21).

The above analytical approach is used to set up a management framework named Logical Framework Matrix. This Logframe summarizes the essentials of project, hierarchy of objectives and activities and assumptions (vertical logic; columns 1 and 4 in table 1), and how the project's development, outputs and outcomes will be monitored and assessed (horizontal logic; columns 2 and 3 of table 1). An example of a Logical Framework Matrix for management programs of coronavirus is presented in table 1. In this matrix, in addition to task priority, a milestone is being set (16, 21). Moreover, responsibilities, cost and budget are determined carefully for each task (table 2). The executive guarantor of the milestone activities for coronavirus control program is the portfolio management office in the WHO which is delegated to the Ministry of Health in each country.

The strengths of the logical framework approach for coronavirus management program are stakeholders' involvement, integrative team work in research and medical procedures, as well as Inter-sectoral cooperation in all parts of society. Moreover, in the logframe responsibilities, cost and budget are determined carefully for each task, which leads to an arranged process to achieve the goals. In the absence of specific medicine and vaccine for coronavirus infection, adjunction of the

regular medical care for the patients with complementary medicine, mental health care and nutritional care should be addressed (22, 23).

Figure 1 shows the dynamic association of COVID-19 managerial process with Political, Economic, Social, Technological, Legal and Environmental (PESTEL) factors. In these critical days, unfortunately, political and economic situations may negatively influence on

coronavirus management programs in some countries. In the case of Iran which are under the most severe and cruel political and economic sanctions which has affected medical affairs are more vulnerable to develop epidemic in spite of excellent health care professionals (24). Hence, stopping the political sanctions is essential to win the war against viruses.

Table 1. Example of a Logical Framework Matrix for Coronavirus Management Programs

Project outline	Measurable indices	Method of affirmation	assumptions
<p>GOAL:</p> <p>Reducing the incidence of coronavirus and associated death</p>	%Contribution of coronavirus to total death rate	Reduction of the percent which coronavirus contributes to total death rate	(Goal to super goal): successful Coronavirus portfolio management
<p>PURPOSE:</p> <p>1- Provide virus free environment for all people</p> <p>2- Informing all people in the society about coronavirus</p> <p>3- Equip sufficient hospital beds for coronavirus infected patients</p> <p>4- Inventing new medicine for treating people affected by coronavirus</p> <p>5- Inventing new coronavirus vaccine</p>	<p>- % of people access to virus free environment</p> <p>- % of people informed about coronavirus ways of transition and protection</p> <p>- % of empty beds devoted to coronavirus infected patients</p> <p>- % of patients treated by new medicines according to clinical trial studies</p> <p>- % of people who developed immunity against coronavirus</p>	<p>Incidence of coronavirus infection as will report by ministry of health officials</p> <p>Rates of recovering from coronavirus infection as will report by ministry of health officials</p>	<p>(Purpose to goal)</p> <p>Successful enrolment of all stakeholders and their contribution to reach the objectives and goals</p>
<p>OUTPUTS:</p> <p>1- Promoting the knowledge, attitude and practice of society members toward coronavirus infection</p> <p>2- Breaking the virus transmission chain</p> <p>3- Finding coronavirus vaccine and medicine</p> <p>4- Efficient prevention and treatment of coronavirus infection</p>	<p>%of people act according to the coronavirus prevention guidelines</p> <p>% of new cases or incidence of coronavirus infection</p> <p>% of people immunized by new coronavirus vaccine.</p> <p>% of people treated by new coronavirus medicines.</p>	<p>Total hours in TV programs devoted to healthy habits to prevent coronavirus</p> <p>KAP questionnaires</p> <p>Clinical trials of coronavirus vaccine and medicines</p>	<p>(Outputs to purpose)</p> <p>Well management process of activities and tasks</p>
<p>ACTIVITIES:</p> <p>1- Community-based education</p> <p>2- Regulations imposed by governments</p> <p>3- Encourage quarantine if necessary</p> <p>4- Vast educational programs</p> <p>5- TV programs &</p>	<p>INPUTS & RESOURCES:</p> <p>No. of health care professionals that focus on community education and treatment</p> <p>No. of hospital beds and equipments devoted to coronavirus infection</p>	<p>Month 1</p> <p>Month 2</p> <p>Month 3</p> <p>Month 4</p> <p>Month 5</p>	<p>(Activity to output)</p> <p>Well satisfied program requirements (such as PESTEL* analysis and SWOT+ analysis)</p>

6-	advertisements Early detection and isolation of positive cases and People they've contacted	No. of scientists and researchers that focus on developing vaccines and medicines
7-	Coronavirus vaccine development program	Supplies expend in development of vaccine
8-	Coronavirus medicine program	Supplies expend in development of new medicines
9-	Promoting mental health, nutritional status and complementary medicine	Legislations which support this program
		No. of agencies and organizations dealing with coronavirus issue
		Funding and other resources that support this program
		Total Cost
		No. of health care professionals that focus on community education and treatment

* PESTEL stands for Political, Economic, Social, Technological, Legal and Environmental, †SWOT stands for Strengths, Weaknesses, Opportunities and Threats

Table 2. Milestone Activities for Coronavirus Control Program (Detailed list of Activities and Resources Allocation to each Task Could be Filled in This Timeframe)

Activity	Sub-Activity (Task)	Duration	Year 2020					Responsibility (Name of Person / Organization)	Requirements	Materials & Equipments	Cost	Budget
			April	May	June	July	August					
1.			→									
2.				→								
3.					→							
4. etc												

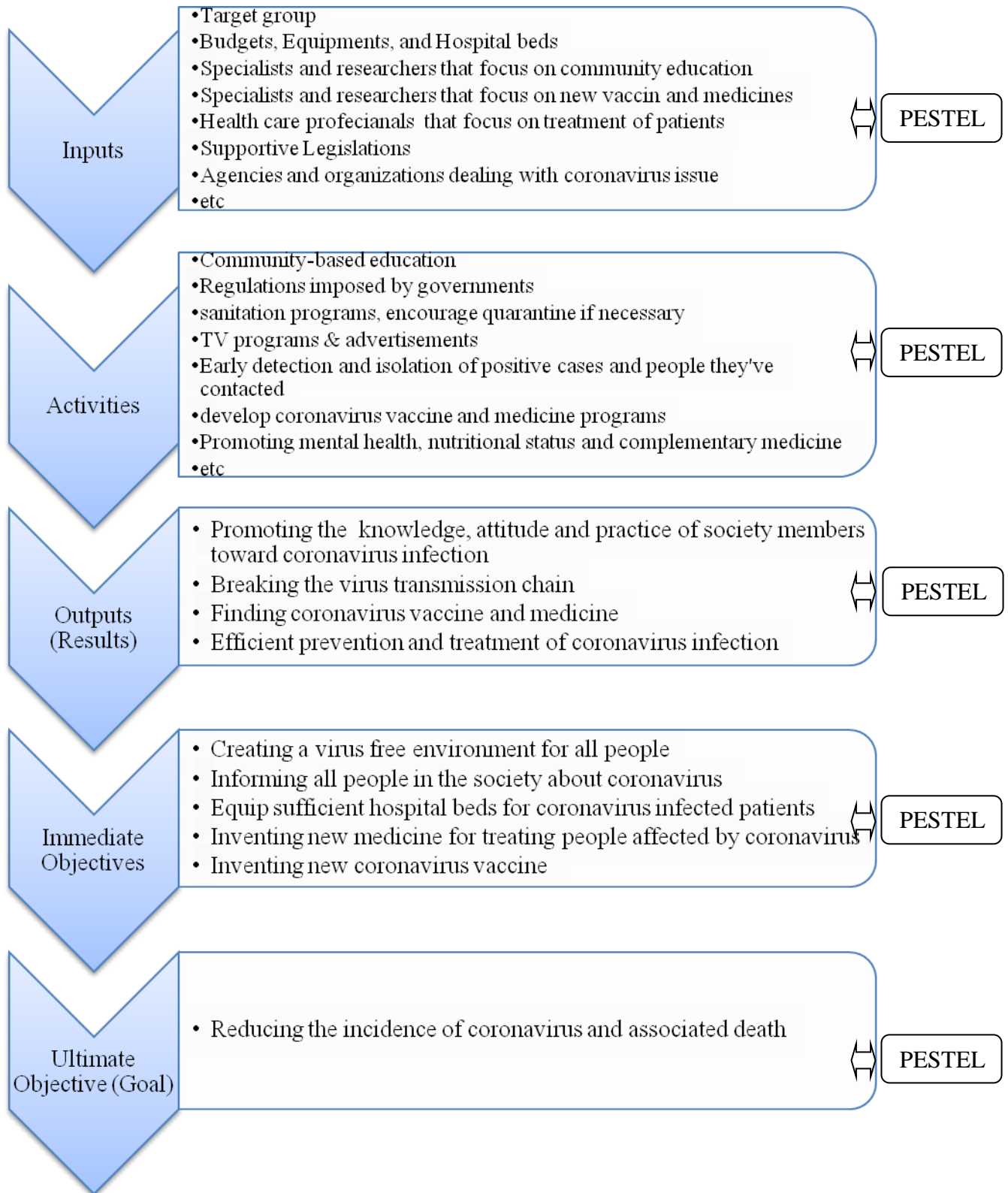


Figure 1. COVID-19 Control Process; ⇔ indicates the Dynamic Association of COVID-19 Managerial Process with Political, Economic, Social, Technological, Legal and Environmental (PESTEL) Factors

Limitation

We are at the beginnings steps of the new coronavirus pandemic. Hence, lack of literature related to coronavirus is obvious. However, using the experience of previous outbreaks such as SARS, MERS and Ebola infections could be helpful.

Conclusion

Currently weakness in coronavirus control programs is obvious. In the absence and also in presence of specific medicine for COVID-19 infection, mental health and nutritional interventions could be cooperative. LFA is a powerful management instrument that could be used by policy-makers for integration of the mental health and nutritional care to the prevention and treatment protocols of coronavirus infection. The key points of LFA for coronavirus control programs are integrative and teamwork approach, involvement of all stakeholders, government and people, and powerful portfolio leadership.

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Conflict of Interest

We declare no conflict of interest related to this work.

References

1. Remuzzi A, Remuzzi G. COVID-19 and Italy: what next? *Lancet*. 2020; 11;395(10231):1225-1228.
2. Kang L, Ma S, Chen M, Yang J, Wang Y, Li R, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. *Brain Behav Immun*. 2020; 87:11-7.
3. Wang Y, Di Y, Ye J, Wei W. Study on the public psychological states and its related factors during the outbreak of coronavirus disease 2019 (COVID-19) in some regions of China. *Psychol Health Med*. 2020:1-10.
4. Peckham R. COVID-19 and the anti-lessons of history. *Lancet*. 2020;395(10227):850-2.
5. Cheung CK, Tse JW. Institutional trust as a determinant of anxiety during the SARS crisis in Hong Kong. *Soc Work Public Health*. 2008;23(5):41-54.
6. Wu KK, Chan SK, Ma TM. Posttraumatic stress, anxiety, and depression in survivors of severe acute respiratory syndrome (SARS). *J Trauma Stress*. 2005;18(1):39-42.
7. Stein MB. EDITORIAL: COVID-19 and Anxiety and Depression in 2020. *Depress Anxiety*. 2020;37(4):302.
8. Moons WG, Shields GS. Anxiety, not anger, induces inflammatory activity: An avoidance/approach model of immune system activation. *Emotion*. 2015;15(4):463-76.
9. Kolesnikov OL, Dolgushin II, Selyanina GA, Shadrina IV, Shalashova MA, Kolesnikova AA. Dependence of immune system function and metabolism on reactive anxiety. *Bull Exp Biol Med*. 2006;142(2):219-21.
10. Conti P, Ronconi G, Caraffa A, Gallenga CE, Ross R, Frydas I, et al. Induction of pro-inflammatory cytokines (IL-1 and IL-6) and lung inflammation by Coronavirus-19 (COVI-19 or SARS-CoV-2): anti-inflammatory strategies. *J Biol Regul Homeost Agents*. 2020;34(2).
11. Kritas SK, Ronconi G, Caraffa A, Gallenga CE, Ross R, Conti P. Mast cells contribute to coronavirus-induced inflammation: new anti-inflammatory strategy. *J Biol Regul Homeost Agents*. 2020;34(1).
12. El-Senousey HK, Chen B, Wang JY, Atta AM, Mohamed FR, Nie QH. Effects of dietary vitamin C, vitamin E, and alpha-lipoic acid supplementation on the antioxidant defense system and immune-related gene expression in broilers exposed to oxidative stress by dexamethasone. *Poult Sci*. 2018;97(1):30-8.
13. Keim ME. O2C3: A unified model for emergency operations planning. *Am J Disaster Med*. 2010;5(3):169-79.
14. Bell S, Christina A. Applying systemic project management approaches for the UK national health service. *Syst Pract Action Res*. 2006;19(1):27-43.
15. McDonald S, Turner T, Chamberlain C, Lumbiganon P, Thinkhamrop J, Festin MR, et al. Building capacity for evidence generation, synthesis and implementation to improve the care of mothers and babies in South East Asia: methods and design of the SEA-ORCHID Project using a logical framework approach. *BMC Med Res Methodol*. 2010;10:61.
16. ahmad Dn. Handbook for Logical Framework Analysis: economic planning unit prime ministre's department; 2010. 40 p.
17. Lobstein T. Commentary: obesity--public health crisis, moral panic or a human rights issue? *Int J Epidemiol*. 2006;35(1):74-6; discussion 81-2.
18. Taylor-Powell, Henert E. Developing a Logic Model: Teaching and Training Guide: University of Wisconsin-Extension-Cooperative Extension, Program Development and Evaluation Unit; 2008 [cited 2013].
19. Mohammadi MR, Mostafavi SA, Hooshyari Z, Khaleghi A, Ahmadi N, Molavi P, et al. Prevalence, correlates and comorbidities of feeding and eating disorders in a nationally representative sample of Iranian children and adolescents. *Int J Eat Disord*. 2020;53(3):349-61.
20. Molavi P, Mikaeili N, Ghaseminejad MA, Kazemi Z, Pourdonya M. Social Anxiety and Benign and Toxic Online Self-Disclosures: An Investigation Into the Role of Rejection Sensitivity, Self-Regulation, and Internet Addiction in College Students. *J Nerv Ment Dis*. 2018;206(8):598-605.

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21. Mohammadi MR, Khaleghi A. Transsexualism: A Different Viewpoint to Brain Changes. *Clin Psychopharmacol Neurosci*. 2018;16(2):136-43.
22. Behzadifar M, Gorji HA, Rezapour A, Rezvanian A, Bragazzi NL, Vatankhah S. Hepatitis C virus-related policy-making in Iran: a stakeholder and social network analysis. *Health Res Policy Syst*. 2019;17(1):42.
23. Mohammadi MR, Ahmadi N, Khaleghi A, Mostafavi SA, Kamali K, Rahgozar M, et al. Prevalence and Correlates of Psychiatric Disorders in a National Survey of Iranian Children and Adolescents. *Iran J Psychiatry*. 2019;14(1):1-15.
24. Takian A, Raoofi A, Kazempour-Ardebili S. COVID-19 battle during the toughest sanctions against Iran. *Lancet*. 2020;395(10229):1035-6.