

SPIRITUALITY OF CARDIAC SURGERY PATIENTS

Anita Podlewska^{1A,B,C,D}, Patrycja Zurzycka^{2E}, Anna Majda^{1A,D,F}

¹Laboratory of Nursing Theory and Fundamentals, Institute of Nursing and Midwifery, Faculty of Health Sciences, Jagiellonian University Medical College, Krakow, Poland

²Department of Clinical Nursing, Institute of Nursing and Midwifery, Faculty of Health Sciences, Jagiellonian University Medical College, Krakow, Poland

Authors' contribution:

A. Study design/planning • B. Data collection/entry • C. Data analysis/statistics • D. Data interpretation • E. Preparation of manuscript • F. Literature analysis/search • G. Funds collection

Address for correspondence:

Anita Podlewska
Laboratory of Nursing Theory
and Fundamentals
Institute of Nursing and Midwifery
Faculty of Health Sciences
Jagiellonian University Medical College
Krakow, Poland
e-mail: anita.podlewska@uj.edu.pl

SUBMITTED: 5.03.2024

ACCEPTED: 8.04.2024

DOI: <https://doi.org/10.5114/ppiel.2024.140725>

ABSTRACT

Introduction: Cardiac surgery is an inherent treatment method of patients with cardiovascular diseases including valvular heart disease, ischaemic heart disease, and heart failure. Patients in the perioperative period require adequate spiritual care by the nursing staff, which promotes effective coping with stress and is an important factor in ensuring a good quality of life after surgery.

The aim of the study was an assessment of the spirituality of patients after cardiac surgeries (coronary artery bypass grafting, aortic valve implantation, left ventricular assist device [LVAD] implantation, and heart transplantation) and an examination of its relationship with selected socio-demographic variables and social support.

Material and methods: The study was conducted with the use of the diagnostic survey method, estimation method, survey technique, and scaling technique. The study involved 102 patients after cardiac surgery. The following standardised tools were used: Self-Description Questionnaire, Spirituality Scale (SD-36 Questionnaire), Multidimensional Perceived Social Support Scale, and the author's own questionnaire. The following statistical tests were used to analyse the results: *U* Mann-Whitney, Kruskal-Wallis ANOVA, and Spearman's rank correlation coefficient, and a multiple regression model was performed. A significance level of $p < 0.05$ was assumed.

Results: The participants achieved high scores on both spirituality scales. Patients in a relationship, living in the countryside, whose cardiac surgery (coronary artery bypass grafting, aortic valve implantation, LVAD implantation, heart transplant) was conducted without complications, and having social support had a higher level of spirituality in comparison to patients who were single, living in the city, without social support, and whose surgery was conducted with complications.

Conclusions: The assessed cardiac surgery patients were characterised by a high level of spirituality. The relationship between marital status, place of residence, the course of surgery, social support, and the spirituality of the respondents was shown. Nurses should ensure care for the spiritual side of patients during nursing care.

Key words: nursing care, cardiac surgery, spirituality.

INTRODUCTION

Cardiovascular diseases are the leading cause of death among non-communicable diseases worldwide. It is estimated that about 1.5 million Poles suffer from coronary artery disease, 90,000 of them have a myocardial infarction annually, and 2-3% of them are diagnosed with heart failure [1, 2]. Cardiac surgery is often the only effective method of treating cardiovascular diseases. The most commonly performed cardiac surgeries are coronary artery bypass grafting and valvular surgery, while the surgical methods of treating advanced heart failure include heart transplantation or mechanical circulatory support in the form of left ventricular assist device (LVAD) implanta-

tion [3-5]. A surgical procedure performed on an organ of such great spiritual importance as the heart requires great care for the spiritual sphere of the patient's life during nursing care, including understanding the individual spiritual needs of patients.

In Mielicka-Pawłowska's report, we can read Skrzypińska's definition of spirituality described as "self-fulfilment in the pursuit of building the meaning of life, happiness, and searching for the ultimate things, with the involvement of one's own cognitive, emotional, experiential, motivational, and behavioural resources, which is sometimes accompanied by peak experiences" [6, pp. 25-26]. In the literature, it is emphasised that the meaning of spirituality is broad – it is a personal experience, unrestricted by doctrine,

which includes a relationship with the sacred and transcendence, and, compared to religiousness, it is not institutionalised [7-9]. Spirituality, faith, and positive religious strategies influence perception of health, illness, and death, reduce rates of depression, and promote higher quality of life, self-esteem, life satisfaction, and greater hope for the future [10, 11]. It has been proven that these factors play an important role in reducing morbidity and mortality in patients after coronary artery bypass surgery [3, 12]. Moreover, research shows that spirituality is a means of improving resilience in patients after cardiac surgery, which may result in better overall recovery and better mental and physical health outcomes [13].

Murgia, Notarnicola, Rocco, and Stievano, in the article “Spirituality in nursing: A concept analysis”, analyse the concept of spirituality in relation to nursing, distinguishing the preceding factors, consequences for nursing, and attributes of spirituality [8]. A diagram of the conceptual framework of spirituality is shown in Figure 1.

The aim of the study was to assess the spirituality of patients after cardiac surgeries: coronary artery bypass grafting, aortic valve implantation, LVAD implantation, and heart transplantation, and to examine its relationship with selected socio-demographic variables and social support.

MATERIAL AND METHODS

The study was conducted using the diagnostic survey method, the estimation method, and the survey and scaling technique in the heart, vascular, and

transplant surgery ward of a specialist hospital in a large city in southern Poland, in the period from November 2022 to April 2023. The subjects of this study were patients after cardiac surgeries: coronary artery bypass grafting, aortic valve implantation, heart transplantation, and LVAD implantation in a varied postoperative period (due to the small number of heart transplantations and LVAD implantations performed, the study included the participation of patients immediately after surgery, as well as patients after distant surgery, reporting for follow-up examinations). The study was conducted with convenience sampling. The inclusion criteria included a history of cardiac surgery: coronary artery bypass grafting, aortic valve implantation, heart transplantation, or LVAD implantation; the exclusion criteria included no history of cardiac surgery.

Standardised tools and a proprietary questionnaire were used in the study. To examine the spirituality of the respondents, the Self-Report Questionnaire created by Heszen-Niejodek, Gruszczyńska, and Mętlak was used, in which the level of total spirituality is the sum of 3 partial indicators: religiousness, ethical sensitivity, and harmony. The maximum number of points to be obtained is 100, and the minimum is 20. The higher the score obtained, the higher the level of spirituality of the tested person. Cronbach’s α for the entire scale is 0.91 [14]. The Spirituality Scale (SD-36 Questionnaire) by Skowroński and Bartoszewski is used to assess spirituality divided into subscales: religious spirituality, spirituality as expanding consciousness, spirituality as a search for meaning, spirituality as sensitivity to art, spirituality as doing good

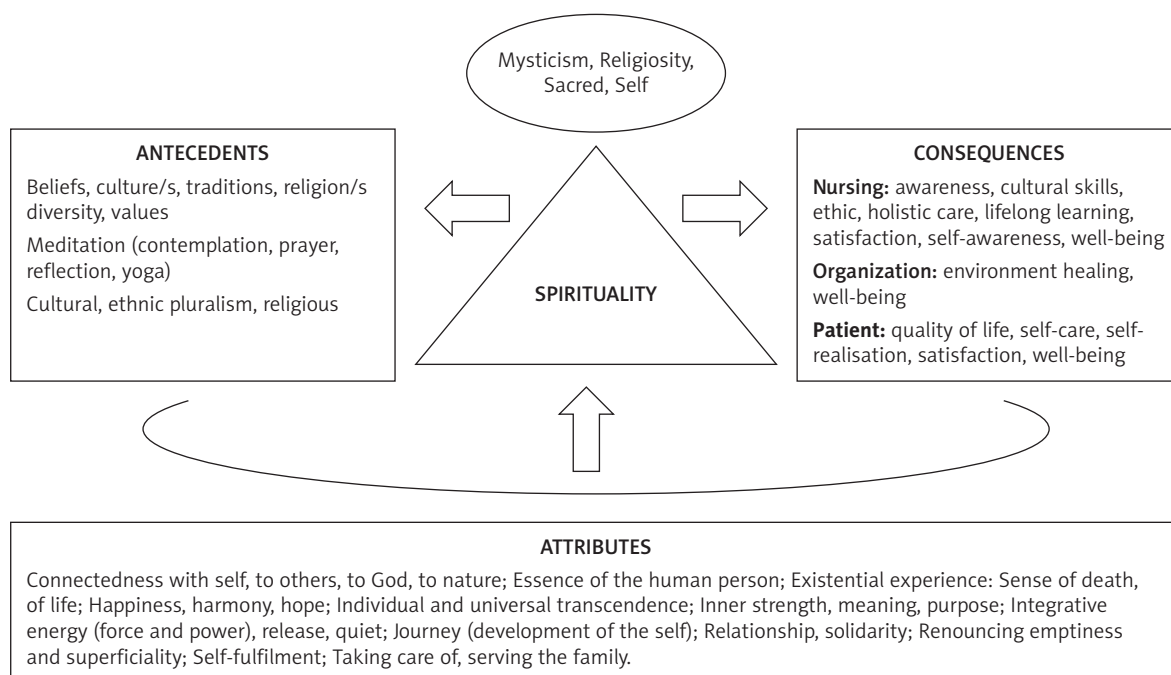


Figure 1. Conceptual framework [8, p. 1335]

and sensitivity to internal beauty (moral choices) and external beauty (surrounding world). The scale was used to measure spirituality among the respondents and to assess its individual areas in the study group. The scale contains 36 items; the maximum number of points that can be obtained is 144, and the minimum is 36. The Cronbach's α internal consistency coefficient for the entire tool was 0.945 [15].

To assess social support, the Multidimensional Scale of Perceived Social Support (MSPSS) was used, which was adapted to Polish by Buszman and Przybyła-Basista. It is used to assess perceived social support, taking into account 3 basic sources of support: significant other, family, and friends. Overall perceived social support is assessed by summing up all items of the questionnaire. Cronbach's α was 0.893 for the whole scale [16]. The time needed to fill the tools was about 30 minutes. Original and standardised research tools were selected in such a way that their content did not violate the interests of the study participants. The respondents were presented with the aim of the research. They were informed that the research is voluntary and anonymous, preceded by consent. Participants of the study knew that they would be able to withdraw at any stage and refuse to fill the prepared tools without incurring any consequences. The respondents were aware that all the information obtained is a declaration and will not be verified, will only be used for scientific purposes, and the results will be anonymised. During the study, the following information were used: 1. The Helsinki Declaration of the World Medical Association; 2. The Act of 10 May 2018 on the protection of personal data; 3. The Code of Ethics for Researchers.

Statistica 13 software was used for the statistical analysis, the Mann-Whitney U statistical tests, the Kruskal-Wallis ANOVA, and the multiple regression model were performed, and Spearman's rank correlation coefficient was used. A significance level of $p < 0.05$ was assumed.

RESULTS

A total of 105 research packages were distributed; 102 completed tools, 2 unfilled tools, and one incorrectly filled tool were obtained. The largest group consisted of patients after aortic bypass surgery ($n = 27$, 26.47%) and after aortic valve implantation ($n = 26$, 25.39%). A significant group consisted of people after heart transplantation ($n = 24$, 23.53%) and after LVAD implantation ($n = 17$, 16.67%). The smallest group were patients after simultaneous coronary artery bypass grafting and aortic valve implantation ($n = 8$, 7.84%). Seventy-eight people (76.5%) were men and 24 women (23.5%). The mean age of the subjects was 60.12 years (SD = 11.17). Among the respondents,

the largest number of people lived in rural areas ($n = 38$, 37.25%), a significant percentage of respondents lived in cities with less than 50,000 inhabitants ($n = 23$, 22.55%) and over 100,000 inhabitants ($n = 27$, 26.47%), while the fewest respondents lived in a city with a population of 50,000-100,000 ($n = 14$, 13.73%). People in a relationship outnumbered single people ($n = 21$, 20.59% vs. $n = 81$, 79.41%). The course of the operation was uncomplicated in most respondents ($n = 70$, 68.63%), while in 32 respondents (31.37%) complications occurred during the procedure.

The study conducted using both scales, evaluating the spirituality of patients, showed a high level of spirituality among cardiac surgery patients. In the Self-Description Questionnaire, the average result obtained among the respondents was 74.45 points. In the Spirituality Scale the average score obtained by the respondents was 108.70 points.

The participants were usually characterised by a high level of perceived social support. The average result of total support, which is the sum of the components of social support, was 67.08 points. However, the average results for the individual subscales were as follows: for perceived support obtained from a significant other – 23.02 points, from family – 22.8 points, and from friends – 21.25 points.

The analysis of statistical data showed that there were no statistically significant differences between the sex and spirituality of the respondents ($p > 0.05$). However, significant differences were found between the marital status of the examined cardiac surgery patients and their spirituality. The analysis showed that people who were in a relationship had a higher level of spirituality than single people (Table 1).

Data analysis using the Kruskal-Wallis ANOVA test showed statistically significant differences between the place of residence and the spirituality of the respondents. The highest level of spirituality was found in the respondents living in the countryside, followed by those living in cities with 50,000 to 100,000 inhabitants, and those living in cities with less than 50,000 inhabitants. The lowest level of spirituality was found in respondents from cities with more than 100,000 inhabitants (Table 2).

The research showed no differences between the type of cardiac surgery and the spirituality of the respondents ($p > 0.05$) but showed a relationship between the course of the surgery and the level of spirituality ($p = 0.021$). The Mann-Whitney U test showed that the subjects who did not experience complications were characterised by a higher level of spirituality than the subjects who did experience complications (Table 3).

The study showed a relationship between the perceived social support and the spirituality of the respondents. To establish the correlation, Spearman's

Table 1. The results of verifying the differences in the spirituality of the respondents according to their marital status

Explained variable	Single (n = 21)		In a relationship (n = 81)		Mann-Whitney U test		
	Me	Mean rank	Me	Mean rank	U	Z	p
Spirituality	69.0	36.857	78.0	55.296	543.0	2.542	0.011

n – number of observations, Me – median, U – Mann-Whitney U test, Z – Z test, p – significance level

Table 2. The results of verifying the differences in the spirituality of the respondents according to the place of residence

Explained variable	Countryside (n = 38)		City < 50,000 (n = 23)		City 50,000-100,000 (n = 14)		City > 100,000 (n = 27)		H (df = 3)	p
	Me	Mean rank	Me	Mean rank	Me	Mean rank	Me	Mean rank		
Spirituality	80.0	61.039	76.0	48.130	78.0	52.179	71.0	52.179	7.935	0.047

n – number of observations, Me – median, H – Kruskal-Wallis test, df – degrees of freedom, p – significance level

Table 3. The results of verifying the differences in the spirituality of the respondents due to the course of the operation

Explained variable	Complications (n = 32)		No complications (n = 70)		Mann-Whitney U test		
	Me	Mean rank	Me	Mean rank	U	Z	p
Spirituality	71.5	41.500	78.0	56.071	800.0	2.307	0.021

n – number of observations, Me – median, U – Mann-Whitney U test, Z – Z test, p – significance level

rank correlation coefficient was used, which showed a moderate strength of the relationship between spirituality and support ($\rho = 0.462$, $p < 0.05$). Multiple regression analysis was performed to test the relationship between social support and spirituality. To verify the assumption that the residuals were uncorrelated in the regression model, the Durbin-Watson test was used. The Durbin-Watson statistic was $d = 1.801$, which means there was no autocorrelation of the residuals. Perceived support turned out to be a statistically significant positive predictor for spirituality among the respondents ($\beta = 0.370$, $p < 0.001$).

DISCUSSION

Based on the study, it can be concluded that cardiac surgery patients had a high level of spirituality. According to Klimasiński *et al.*, it is an important resource for coping with suffering among patients [17]. In their research, Bagheri *et al.* emphasise that spirituality is crucial after cardiac surgery – both after a relatively frequently performed procedure, such as coronary artery bypass grafting, and after heart transplantation. It is emphasised that a high level of spirituality influences physical and mental health, both in the general population and in cardiac surgery patients [3, 18]. Researchers emphasise the importance of spirituality and social support for patients after cardiac surgery and patients suffering from heart failure. In the study by Eglin, Schmid, Ronel, *et al.*, the authors draw attention to the importance of both of these variables for the quality of life, while social support also reduces the risk of depression among patients

after cardiac surgery [19]. Among patients with heart failure, high levels of spiritual peace and social support are associated with positive states of mind [20]. Boylan *et al.* in their study showed that social support plays a significant role in the relationship between spirituality and mortality [21]. Studies conducted on another group of patients show that social support exhibits a positive correlation with spiritual coping [22]. The analysis of the research results showed a higher level of spirituality in patients in a relationship than in single patients. It can be assumed that the low level of spirituality among the single respondents could be related to social support, the impact of which on spirituality was confirmed by the conducted research. Popiołek's study confirms that marriage is an irreplaceable source of social support, so the lack of marital support may be a factor inducing a low level of spirituality among the respondents, but this issue requires further exploration [23]. Although the author's study showed a relationship between the perceived social support and the spirituality of the respondents, not every researcher agrees with this statement. Schuurmans-Stekhoven admits that a lot of authors claim that spirituality increases well-being *via* social support, but his study questions the correlation between spirituality and social support [24]. A higher level of spirituality among patients living in rural areas is confirmed by studies conducted on other groups of patients, including patients with depression in the studies of Sikora *et al.* [25]. Patients whose surgery was successful were characterised by a higher level of spirituality than patients who experienced postoperative complications. Martins *et al.* in their work showed

a similar positive relationship between spirituality and good treatment results reported by patients [26]. The relationship between the course of the surgery and the spirituality of the subjects can be traced to a twofold relationship – the scientifically confirmed influence of spirituality on the course of the surgery and health, and the opposite relationship – a crisis of faith caused by the unfavourable course of the procedure and the associated suffering.

ADVANTAGES AND DISADVANTAGES/ LIMITATIONS

The advantage of the study is the demonstration of the importance of spirituality, which is a rarely explored topic in Polish research, for the care of cardiac surgery patients. The limitations of the study include the characteristics of the study group. The limited number of patients after heart transplantation and LVAD implantation were the reasons for the small number of patients examined, and the fact that patients completed research packages in various postoperative periods, which is a disadvantage of the study. It is possible that the time after surgery could be important for research results. Another limitation is the unevenness of the groups, which makes it difficult to perform statistical analysis.

IMPLICATIONS FOR PRACTICE

The conducted study emphasises the importance of spirituality, both religious and non-religious, in the lives of cardiac surgery patients. To ensure optimal care during nursing work, it is necessary to ensure care for the spiritual sphere of patients, as well as for factors that have shown a relationship with spirituality. An important element is the involvement of the nurse in providing the adequate spiritual care to avoid spiritual suffering in patients and help them live through the perioperative period in a safe and comfortable way.

CONCLUSIONS

The examined patients after cardiac surgeries (coronary artery bypass grafting, aortic valve implantation, heart transplantation, LVAD implantation) were characterised by a high level of spirituality.

Demographic variables, such as marital status and place of residence, were related to the level of spirituality – patients in a relationship and living in the countryside were characterised by a significantly higher level of spirituality.

The examined cardiac surgery patients whose operation was uneventful were characterised by a significantly higher level of spirituality than those whose surgery was complicated.

The spirituality of the surveyed patients after cardiac surgery depended on the perceived social support. It increased in parallel with amount of social support they received.

Disclosures

This research received no external funding.
Institutional review board statement: Not applicable.
The authors declare no conflict of interest.

References

- Załącznik do uchwały nr 1295/71/19 Zarządu Województwa Mazowieckiego z dnia 17 września 2019 r. Program polityki zdrowotnej w zakresie profilaktyki wtórnej u osób po ostrych zespołach wieńcowych. Warszawa 2019.
- Jemielity M, Urbanowicz T. Transplantacja serca. In: Arcimienko P, Baranowska A, Baranowska K (Ed.). *Transplantologia i pielęgniarstwo transplantacyjne*. Wydawnictwo Lekarskie PZWL, Warszawa 2016; 209-218.
- Bagheri J, Shayan S, Bagheri MM, et al. Relationship of spirituality with morbidity and mortality in patients with coronary artery disease undergoing CABG surgery at Shariati Hospital. *Journal of Pizhūhish dar dīn va salāmat* 2019; 5: 76-86.
- Czerwiński J, Małkowski P (Ed.). *Medycyna transplantacyjna dla pielęgniarek*. Wydawnictwo Lekarskie PZWL, Warszawa 2017.
- Pacholewicz J, Zakliczyński M. Mechaniczne wspomaganie serca jako metoda leczenia krańcowej niewydolności krążenia i pomost do przeszczepienia sera. In: Cierpka L, Durlik M (Ed.). *Transplantologia kliniczna. Przeszczepy narządowe*. Termedia Wydawnictwo Medyczne, Poznań 2017; 280-288.
- Mielicka-Pawłowska H. Wychowanie do duchowości jako problem społeczeństwa ponowoczesnego. *Studia Paedagogica Ignatiana* 2021; 24: 21-44.
- Lucchetti G, Koenig HG, Lucchetti ALG. Spirituality, religiousness, and mental health: A review of the current scientific evidence. *World J Clin Cases* 2021; 9: 7620-7631.
- Murgia C, Notarnicola I, Rocco G, Stievano A. Spirituality in nursing: a concept analysis. *Nurs Ethics* 2020; 27: 1327-1343.
- Instytut Psychoterapii Integralnej. *Duchowość*. 2020 (citation date: 15.08.2023). Available: <https://www.ipri.pl/duchowosc/>
- Deluga A, Dobrowolska B, Jurek K, et al. Selected determinants of spirituality among nurses. *Pielęgniarstwo XXI wieku* 2021; 20: 22-29.
- Bąk JM, Niedorys B, Chrzan-Rodak A, et al. Religijność a kompetencje kulturowe pielęgniarek w kontekście przeobrażeń społecznych. *Rozprawy Społeczne* 2020; 14: 98-109.
- Abu HO, Ulbricht C, Ding E, et al. Association of religiosity and spirituality with quality of life in patients with cardiovascular disease: a systematic review. *Qual Life Res* 2018; 27: 2777-2797.
- Curcio N, Turner ED, Leonard K, et al. The role of resilience and spirituality in recovery following cardiac surgery. *Proc Bayl Univ Med Cent* 2022; 35: 420-427.
- Heszen-Niejodek I, Gruszczyńska E. Wymiar duchowy człowieka, jego znaczenie w psychologii zdrowia i jego pomiar. *Przegląd Psychologiczny* 2004; 47: 15-31.
- Skowroński B, Bartoszewski J. Skala Duchowości – opis konstrukcji i właściwości psychometryczne. *Psychiatria i Psychoterapia* 2017; 13: 3-29.
- Buszman K, Przybyła-Basista H. Polska adaptacja Wielowymiarowej Skali Spostrzeganego Wsparcia Społecznego. *Polskie Forum Psychologiczne* 2017; 22: 581-599.

17. Klimasiński MW, Theda J, Cofta S, et al. Opieka duchowa w medycynie: duchowość a postrzeganie choroby, radzenie sobie z cierpieniem – ankietowe badanie ilościowe na polskiej populacji dorosłych chorych przewlekle. *Sztuka Leczenia* 2020; 1: 9-18.
18. Taghavi S, Afshar PF, Bagheri T, et al. The relationship between spiritual health and quality of life of heart transplant candidates. *J Relig Health* 2020; 59: 1652-1665.
19. Eglin M, Schmid JP, Ronel J, et al. Impact of social support and religiosity/spirituality on recovery from acute cardiac events and heart surgery in a Swiss study. *Int J Psychiatry Med* 2023 (online ahead of print).
20. Park CL, Lee SY. Unique effects of religiousness/spirituality and social support on mental and physical well-being in people living with congestive heart failure. *J Behav Med* 2020; 43: 630-637.
21. Boylan JM, Biggane C, Shaffer JA, et al. Do purpose in life and social support mediate the association between religiousness/spirituality and mortality? Evidence from the MIDUS National Sample. *Int J Environ Res Public Health* 2023; 20: 6112.
22. Ciria-Suarez L, Calderon C, Fernández Montes A, et al. Optimism and social support as contributing factors to spirituality in cancer patients. *Support Care Cancer* 2021; 29: 3367-3373.
23. Popiołek K. Wsparcie społeczne w małżeństwie. *Chowanna* 2005; 2: 118-128.
24. Schuurmans-Stekhoven JB. Spirit or fleeting apparition? Why spirituality's link with social support might be incrementally invalid. *J Relig Health* 2017; 56: 1248-1262.
25. Sikora A, Majda A, Kurowska A. Religijność i zachowania zdrowotne pacjentów z depresją. *Pielęgniarstwo Polskie* 2021; 1: 11-18.
26. Martins MM, Pessoa de Assis B, Lopes Assis D, et al. The importance of religiosity/spirituality in the prognosis of heart patients: An approach to the Covid-19 pandemic. *Bull Med Clin Res* 2021; 2: 10-17.