Cross-Cultural Adaptation, Reliability and Validity of the Persian Version of COVID-19 Preventive Measures Questionnaire in Radiation Therapy Center, Yazd, Iran

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ABSTRACT

Background: Due to the overflow of people in radiation therapy centers and the importance of not interrupting the treatment process, preventive measures is one of the most important measures to deal with COVID-19; therefore, this study aims to evaluate intercultural compatibility, reliability, and validity of COVID-19 prevention measures in a radiation therapy center.

Methods: This analytical cross-sectional study was performed with 20 personnel at radiation therapy center of Yazd, Iran using a census method in September 2021. A COVID-19 prevention scale with 29 items was used as measurement tool. First, cultural adaptation was assessed, and then, face validity was determined by calculating the impact score (IS). Content validity was evaluated by calculating the content validity ratio (CVR) and content validity index (CVI), and reliability was determined using the test-retest method, and Kuder–Richardson (KR20) alpha coefficient, and calculating intra-class correlation coefficient (ICC). All the analyses were performed in SPSS software version 24 with a significance level of 5%.

Results: 30% (6 people) of the subjects were, 70% (40 people) of whom had less than 15 years of work experience. Four items of the questionnaire were removed based on the minimum Lawshe's CVR values, as their CVR was less than 0.62. Finally, the (KR20) coefficient, scale-level CVI, and ICC were estimated at 0.827, 0.98, and 0.52, respectively.

Conclusion: The validity and reliability of the questionnaire were confirmed; therefore, this Persian version of 25-item scale is proposed as a suitable and effective tool for COVID-19 prevention measures in Persian language countries.

Keywords: COVID-19, Radiotherapy, Validity and Reliability

Introduction

According to the report by World Health Organization (WHO), in late December 2019, an outbreak of an unknown disease called COVID-19 was confirmed in Wuhan, Hubei Province, China (1). SARS-COV-2 is the seventh member of the COVID-19 family (2) and one of the most destructive incidents regarding the world's health. In addition to physical threats, there is evidence for significant mental problems, including an increase in suicidal ideation (3). COVID-19 is a significant challenge for cancer patients. These patients are regarded as a highly vulnerable group in contracting COVID-19 due to their immune-compromised status as well as the fractionated treatment program that increases the risk of getting COVID-19 (4, 5). Many of them are middle-aged and go to medical centers frequently, which increases their chance of encountering infected people (6).

Social distancing in the face of COVID-19 has detrimental effects on mental health and physical activity in general population, and results in increased levels of anxiety, depression, and stress (7). Cancer survivors have unique emotional needs due to familial and financial strains, depression, anxiety, and many pre-existing long-term health challenges (8). In addition to surgery, chemotherapy, and hormone therapy, radiotherapy is one of the main methods to cancer treatment (9). While COVID-19 can interrupt the process of conventional radiation therapy, studies have shown that COVID-19- related anxiety also affects patients' decision-making processes regarding treatment and even treatment continuation (10-12).

Radiation therapy centers in several countries are taking serious preventive measures to ensure that healthcare is provided consistently, without affecting the safety of patients, staff, and specialists in radiation therapy as well as treatment program of cancer patients (13, 14).

According to potential physical and psychological injuries caused by COVID-19 in cancer patients undergoing radiotherapy, and in order to improve safety and preventive protocols of radiation therapy centers, this study was performed to determine the reliability and validity of the COVID-19 Preventive Measures (CPM) questionnaire in radiotherapy centers designed by Kisuke Tamari et al. (15). Given the potential impact of COVID-19 on the quality of services provided by staff and the well-being of radiation therapy patients, implementing safety measures in radiation therapy centers is critical in addressing COVID-19 outbreak.

This study aims to assess reliability and validity of CPM questionnaire among the radiation therapy center personnel in Yazd, Iran. As it has not been previously utilized in this population, standardization is necessary as a first step.

Methods

This was an analytical cross-sectional study conducted in September 2021 in radiation therapy centre of Yazd, Iran. Sampling was done by census method and included 20 nurses (4 people), radiation oncologists (1 people), physicists (5 people), and technologists (10 people). CPM questionnaire consisted of 29 items that were approved by the Japanese Society for Radiation Oncology (JASTRO). The use of masks, frequent hand washing, surface cleaning, social distancing, and limiting the contact of patients with their companions were important measures to prevent COVID-19 in radiation therapy departments in Japan (15).

This questionnaire was conducted to investigate the prevention of COVID-19 in radiation therapy departments in Japan using an online questionnaire. The online questionnaire was developed using Google Forms and consisted of 29 questions. The questions were about various measures taken in radiation therapy departments to prevent COVID-19. On April 10, 2020, three days after the first declaration of a state of emergency for seven prefectures, the questionnaire was sent to radiation oncologists in Osaka. On April 16, 2020, when the areas under declaration of emergency were expanded to all the 47 prefectures in Japan, JASTRO members nationwide received it via JASTRO-gram. The first three questions of the

questionnaire assessed the cognitive information of the radiation therapy center, and the remaining 26 questions examined CPM (15).

The validity and reliability of this questionnaire was determined in four steps.

(Figure 1 near here)

The first step: cultural adaptation

Forward-backward method was used for cultural adaptation (16). First, two native Persian translators with proficiency in English translated CPM questionnaire from English to Persian (forward translation). Then, the compatibility of the translations was checked in a committee consisting of translators and specialists (radiologist and physicist). After reaching a consensus on the translated words, two other English translators translated the Persian version into English without knowing the English version (backward translation). Differences between translations were examined by a previous committee, and native Persian words and terms were replaced. Finally, the Persian translated version was considered as the main tool for psychometrics.

The second step: face validity

In face validity, characteristics of the appearance of the words and sentences of the questionnaire were considered to increase the motivation to answer (17). The final questionnaire was given to 10 experts in medical physics and oncology to assess the face validity. Impact score (IS) was used to determine the face validity of each item. First, a 5-point Likert scale (ranging from not important, slightly important, moderately important, important and very important was considered for each items with scores of 1 to 5), then the IS was calculated using the following Equation 1 (17).

Equation 1: IS calculating

Impact score = Frequency (%) × Importance

where, "importance" is the average total score of individuals to each item based on the Likert scale, and "frequency" is the percentage of people who scored the item 4 or 5. Items with an IS of greater than 1.5 were identified as appropriate for subsequent analyses, and the items with an IS of less than 1.5 were revised.

Third step: content validity
A: Content validity ratio (CVR)

In order to determine content validity, the proposed method of Lawshe was used (18, 19). The questionnaires were given to 10 experts who were requested to score each item from 1 to 3 based on the choices *"not necessary, useful but not essential, and essential"* respectively. Then CVR was calculated using Equation 2.

Equation 2: CVR calculating

$$CVR = 2(Ne - {N}/{2})/N$$

where, N is the total number of panellists and Ne is the number of panelists indicating "essential". In this study, there were 10 panelists. According to the proposed method of Lawshe, the minimum acceptable value for CVR was considered to be 0.62, and for CVR, it was less than 0.62, zero, and negative; so, the item was removed.

B: Content validity index (CVI)

After identifying the items for inclusion in the final form, the item-level content validity index (I-CVI) was calculated, which was the proportion of the number of experts who gave the item a rating of 4 or 5 against the total number of participants, Then, the scale-level content validity index (CVI) was calculated by Equation 3 based on the average method (S-CVI/Ave), which was the average of the I-CVI scores for all the scale items (18-20)

Equation 3: S- CVI calculating formula

$$S - CVI = {\sum_1^n I - CVI}/{Number\ of\ items}$$

I-CVI of 0.79 was considered to be acceptable. Items with an I-CVI between 0.70 and 0.79 were considered suspicious and revised. Items with I-CVI of less than 0.79 were eliminated.

Step four: reliability

Reliability was determined using internal reliability and test-retest method (21, 22).

According to dichotomous items of questionnaires, internal consistency was determined using KR-20 formula (Equation 4). It was a special case of Cranach's α, which was computed for dichotomous scores. It is often

claimed that a high KR-20 coefficient (e.g., > 0.90) indicates a homogeneous questionnaire (21).

Equation 4: KR-20 calculating formula

$$KR(20) = \frac{K}{K-1}\left[1 - \frac{\sum_{i=1}^{N} p_i q_i}{\sigma^2_X}\right]$$

Where p_i and q_i are the proportion of correct and incorrect responses to the item i, respectively (so that $p_i + q_i = 1$), and σ^2 is the variance.

For stability reliability (test-retest reliability), 10 respondents were selected, and for the second time after two weeks, the questionnaire was answered by the same respondents. Then, Pearson correlation coefficient and intra-class correlation coefficient (ICC) were calculated. An ICC of more than 80% was considered desirable (22).

The final CPM questionnaire, after cultural adaptation and psychometric analysis, was presented in the appendix.

Statistical analysis

Mean, standard deviation, frequency, and percentage were used to describe the variables. To determine face validity, IS was calculated and for content validity, CVR and CVI were measured. The KR-20 test was used to evaluate internal consistency, and to determine the stability reliability, Pearson correlation coefficient and ICC were calculated. Data were analysed by SPSS software version 24, and level of significance was considered 5%.

Ethical consideration

This study was approved by Shahid Sadoughi University of Medical Sciences in Yazd, Iran, under the ethics code of IR.SSU.REC.1400.119.

Result

Participants

20 individuals completed the, 70% (14 people) of whom were female, and the mean (SD) age of the participants was 32.4 (6.35), Moreover, the minimum work experience in radiotherapy center was 1 year and the maximum experience was 13 years. However, the mean (SD) work experience was 6.1 (3.8). Most of them were married (75%, 15 people) and technologists (50%, 10 people). Economic status of 95 % of participants was average or good (19 people). Half of the participants had a history of COVID-19 among family and friends, 40% (8 people) had a history of COVID-19 fatality among family and friends, and 15% (3 people) had a history of underlying disease (Table 1).

Content validity

Table 2 shows the results of calculating the content validity ratio. According to the proposed method by Lawshe, items with a CVR of greater than 0.62 were accepted. The results showed that all the items, except items 3, 10, 15 and 22 were accepted. S-CVI was 0.95 for the 29-item questionnaire. After removing 4 items, an index of 0.98 was obtained, which indicated a high level of S-CVI for CPM questionnaire.

Reliability

Reliability of the questionnaire was assessed using internal consistency and test-retest method. As shown in Table 3, the KR-20 coefficient was generally 0.82, which was an acceptable value. In addition, Pearson correlation coefficient, intra-cluster correlation coefficient, and confidence interval were 0.79, 0.52, and 0.25-0.81, respectively.

Table 1. Descriptive statistics of demographic variables

Variable	lL	N (%)
Gender	Male	6 (30)
	Female	14 (70)
Marital status	Single	5 (25)
	Married	15 (75)
Age	20-30	11 (55)
	31-40	6 (30)
	41-50	3 (15)
Work experience	10>	15 (75)
	10<	5 (25)
Occupation	Doctor	1 (5)
	Nurse	4 (20)
	Physicist	5 (25)
	Technologist	10 (50)
Economic situation	Poor	1 (5)
	Medium	10 (50)
	Good	9 (45)
	Excellent	0 (0)
Underlying disease	Yes	3 (15)
	No	17 (85)
History of COVID-19 among family and friends	Yes	10 (50)
	No	10 (50)
History of fatality due to COVID-19 among family and friends	Yes	8 (40)
	No	12 (60)

Table 2. Impact score (IS), content validity ratio (CVR) and item-level content validity index (I-CVI) of each item regarding COVID-19 Prevention Measures (CPM) questionnaire

Item number	Expert team evaluation score (n=10 people)										Mean	IS	I-CVI	CVR	Acceptability
	1	2	3	4	5	6	7	8	9	10					
1	3	5	5	5	5	5	5	5	5	5	4.8	4.32	0.9	0.8	Accepted
2	5	5	4	5	5	5	5	5	5	5	4.9	4.90	1.0	0.8	Accepted
3	3	5	3	3	5	5	5	5	5	5	4.4	3.08	0.7	0.4	Eliminated
4	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
5	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
6	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
7	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
8	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
9	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
10	3	5	3	3	5	5	5	5	5	5	4.4	3.08	0.7	0.4	Eliminated
11	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
12	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
13	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
14	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
15	3	3	5	5	5	5	5	5	5	5	4.6	3.68	0.8	0.6	Eliminated
16	4	5	5	5	5	5	5	5	5	5	4.9	4.90	1.0	0.8	Accepted
17	3	5	5	5	5	5	5	5	5	5	4.8	4.32	0.9	0.8	Accepted
18	4	5	5	5	5	5	5	5	5	5	4.9	4.90	1.0	0.8	Accepted
19	5	4	5	5	5	5	5	5	5	5	4.9	4.90	1.0	0.8	Accepted
20	3	5	5	5	5	5	5	5	5	5	4.8	4.32	0.9	0.8	Accepted

Item number	Expert team evaluation score (n=10 people)										Mean	IS	I-CVI	CVR	Acceptability
	1	2	3	4	5	6	7	8	9	10					
21	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
22	3	3	5	5	5	5	5	5	5	5	5.0	4.00	0.8	0.6	Eliminated
23	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
24	5	5	4	5	5	5	5	5	5	5	4.9	4.9	1.0	0.8	Accepted
25	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
26	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
27	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
28	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted
29	5	5	5	5	5	5	5	5	5	5	5.0	5.00	1.0	1.0	Accepted

Table 3. The results of reliability assessment of CPM questionnaire

Measurement quantity	Value
Pearson correlation coefficient	0.79
Intra-cluster correlation coefficient (ICC, 95%CI)	0.52 (0.25-0.81)
KR-20 coefficient	0.82
Final number of items	25

Discussion

COVID-19 has somehow affected the management of other non-contagious diseases such as cancer (23). Cancer patients who undergo radiation therapy are vulnerable, and their immune systems are weak. Ensuring maximum safety and **CPM** is essential for personnel and patients at radiotherapy department to reduce psychological and physical injuries.

In order to assess the safety of patients and personnel in the radiation therapy department and minimize the risk of infection among operators whose absence makes radiotherapy impossible, a study was conducted by Pezzulla et al. in southern Italy. It was recommended that each radiotherapy center adjust its organizational model for management of COVID-19 based on relevant instructions and the specific characteristics of the center in terms of equipment, staff, and hospital environment (24).

In South Korea, Won Han et al. used a questionnaire to examine the effect of COVID-19 outbreak on infection prevention programs. The results showed that **CPM** affected the knowledge and psychological mechanisms associated with infectious diseases in adults. The KR20 coefficient in this study was 0.85 (25).

In three questionnaires, Srivastava et al.

examined strategies to combat stressors among healthcare workers (HCW) during the COVID-19 outbreak, and the results showed that accurate implementation of safety protocol and preventive measures, providing personal protective equipment, and offering psychological support were factors which helped to reduce stress among HCWs. The KR20 coefficient in their study for the three questionnaires was 0.71, 0.83, and 0.74, respectively (26). In the present study, KR20 alpha coefficient of the CPM questionnaire was 0.827.

Due to the increasing use of radiation in health centers, it is important that personnel become familiar with the principles of radiation protection. Using questionnaires, a cross-sectional analytical study was conducted in 2021 which examined the performance of nurses and surgeons in the operating room in relation to radiation protection. The average IS of the questionnaire was 3.024, and at this stage, the number of questions was reduced from 120 to 63. Also, the mean values of CVR and CVI were calculated to be 0.93 and 0.97, respectively (27).

A questionnaire was designed by Alavi et al. to assess the compliance of radiologists' knowledge and attitudes with their performance regarding the principles of radiation protection. The CVR of items were calculated to be between 0.61 and 0.76,

and the CVI of various dimensions were between 0.77 and 0.93 (28). Saadati et al. also designed a questionnaire to assess the safety status of imaging department in thirteen hospitals. The CVI and mean CVR in this questionnaire were 0.86 and 0.82, respectively (29).

In this study, The CVR of the final questionnaire was between 0.8 and 1, and the S-CVI was 0.98. Items 3, 15, and 22 due to ambiguity and item 10 due to definite implementation had low CVR (less than 0.62) and were removed from the questionnaire.

It was previously stated that cancer patients were at greater risk of COVID-19 and if infected, treatment would be discontinued for several weeks. Therefore, for the first time in Iran, the authors decided to conduct a scientific study on validity and reliability of the preventive measure's questionnaire in the face of COVID-19. The results showed that the CPM questionnaire could be used in health centers in Iran.

This study had some limitations. First, some participants did not have enough cooperation, and some did not have enough information about the facilities of the radiation therapy department. A number of personnel were also infected with COVID-19 at the time of data collection, which prolonged the data collection process. Another limitation of the study was the small number of personnel, which was not enough to perform confirmatory and exploratory factor analyses. It is suggested that studies with larger sample sizes in different periods be performed to determine the correlation of the index with data developed in all the subsets with regard to preventive measures.

Conclusions

The validity and reliability of the CPM questionnaire was confirmed in this study. To assess the CPM of radiotherapy and health centers, this 25-item scale is recommended. The results of this study emphasize the significance of implementing efficient measures to prevent COVID-19 transmission in radiation therapy centers. Following safety and preventive protocols, which include maintaining hand hygiene and utilizing personal protective equipment, is vital in ensuring the safety of both patients and staff. Additionally, the study highlights the necessity of continually educating and training staff regarding CPM. These results have crucial implications for managing radiation therapy centers during the pandemic and beyond and offer a foundation for future research in this field.

Ethical considerations

Informed consent was obtained from all the participants in the study.

Code of ethics

All the stages of the current study were approved by the National Ethics Committee at Shahid Sadoughi University of Medical Sciences in Yazd (Ethics Code: IR.SSU.REC.1400.119).

Authors' contribution

K. S. collected data, and drafted and wrote the manuscript; F. M. carried out the statistical analysis; S. A-D wrote and edited the final version of the manuscript; N. H, participated in the study design and helped with drafting and editing the manuscript. All the authors contributed to the interpretation of the findings and read and approved the final manuscript.

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Appendix 1. The final CPM questionnaire after cultural adaptation and psychometric analysis

Item number	Question	Answer choices	Acceptability
1	What is the type of your center?	Research institute Community hospital Clinic	Accepted
2	What radiotherapy techniques are performed at your center?	X-ray Proton therapy Carbon-ion Brachytherapy	Accepted
3	How much radiotherapy is performed in your center every year?	~200 201~500 501~1000 1001~1500 1501~	Eliminated
4	Does your center accept COVID-19 patients?	Yes No	Accepted
5	Does your center perform any infection control measures to prevent COVID-19?	Yes No	Accepted
6	Do you check patients daily for COVID-19 symptoms at your center?	Yes No	Accepted
7	Do you check radiotherapy staff for COVID-19 symptoms every day?	I do not know Yes No	Accepted
8	Do radiotherapy staff who are in contact with patients hand hygiene observation?	I do not know Yes No	Accepted
9	Do radiotherapy staff who are not in contact with patients hand hygiene observation?	I do not know Yes No	Accepted
10	Do radiotherapy patients hand hygiene observation?	I do not know Yes No	Eliminated
11	Do radiotherapy staff who are in contact with patients wear masks?	I do not know Yes No	Accepted
12	Do radiotherapy staff who are in contact with patients wear masks?	I do not know Yes No	Accepted
13	Do radiotherapy patients wear masks when seeing other patients?	I do not know Yes No	Accepted
14	Do you use personal protective equipment (PPE) when contacting with radiotherapy patients?	I do not know Yes No	Accepted
15	Do you sanitize what others touch in the center? (keyboards, doorknobs, electrical switches, etc.)	Yes No	Eliminated
16	Do you ventilate examination rooms in your center?	Yes No	Accepted
17	Do you ventilate patients' waiting rooms in your center?	Yes No	Accepted
18	Do you ventilate the operator control rooms in your center?	Yes No	Accepted
19	Do you ventilate treatment rooms in your center?	Yes No	Accepted
20	Do you ventilate the rest rooms of radiotherapy staff?	Yes No	Accepted

21	Is social distancing observed between patients in your center?	I do not know Yes No	Accepted
22	Is there social distancing between staff in your center?	I do not know Yes No	Eliminated
23	Is social distancing observed between staff when resting?	I do not know Yes No	Accepted
24	Is radiation treatment time divided into outpatient and inpatient hours?	Yes No	Accepted
25	Have you postponed patient follow-up dates?	I don't know Yes No	Accepted
26	Have you postponed starting radiotherapy?	Yes No	Accepted
27	Have COVID-19 cases occurred in patients receiving services from your radiation therapy center?	Yes No	Accepted
28	Has the staff been infected with COVID-19 at your radiation therapy center?	Yes No	Accepted
29	Have people been infected with COVID-19 outside your radiotherapy department?	Yes No	Accepted

ضمیمه ۲. پرسشنامه نهایی اقدامات پیشگیرانه کووید ۱۹(CPM) ، پس از سازگاری فرهنگی و تجزیه و تحلیل روانسنجی.

شماره	پرسش	انتخاب پاسخ
۱	نوع موسسه شما کدام است؟	☐ موسسه تحقیقاتی ☐ بیمارستان ☐ کلینیک
۲	موسسه شما چه نوع رادیوتراپی را ارائه می‌دهد؟ (انتخاب چند گزینه امکان‌پذیر است)	☐ اشعه ایکس ☐ پروتون تراپی ☐ یون کربن ☐ برکی تراپی
۳	در این مرکز نمونه های شما در سال چه تعداد است؟	☐ کمتر از ۲۰۰ ☐ ۲۰۱ تا ۵۰۰ ☐ ۵۰۱ تا ۱۰۰۰ ☐ ۱۰۰۱ تا ۱۵۰۰ ☐ بیشتر از ۱۵۰۰
۴	در موسسه شما بیماران کووید ۱۹ نیز بستری می‌شوند؟	☐ بله ☐ خیر
۵	آیا در موسسه شما هیچ آزمون کنترل عفونتی جهت پیشگیری از کووید ۱۹ انجام می‌شود؟	☐ بله ☐ خیر
۶	آیا شما به طور روزانه بیماران را از نظر علائم کووید ۱۹ بررسی می‌کنید؟	☐ بله ☐ خیر
۷	آیا شما به طور روزانه کارمندان رادیوانکولوژی را از نظر علائم کووید ۱۹ بررسی می‌کنید؟	☐ نمیدانم ☐ بله ☐ خیر
۸	آیا کارمندان رادیوانکولوژی که در تماس با بیماران هستند، اقدام به رعایت بهداشت دست می‌کنند؟	☐ نمیدانم ☐ بله ☐ خیر
۹	آیا کارمندان رادیوانکولوژی که در تماس با بیماران نیستند، اقدام به رعایت بهداشت دست می‌کنند؟	☐ نمیدانم ☐ بله ☐ خیر
۱۰	آیا بیماران رادیوانکولوژی، اقدام به رعایت بهداشت دست می‌کنند؟	☐ نمیدانم ☐ بله ☐ خیر
۱۱	آیا کارمندان رادیوانکولوژی که در تماس با بیماران هستند، از ماسک استفاده می‌کنند؟	☐ نمیدانم ☐ بله ☐ خیر
۱۲	آیا کارمندان رادیوانکولوژی که در تماس با بیماران نیستند، از ماسک استفاده می‌کنند؟	☐ نمیدانم ☐ بله ☐ خیر

☐ نمیدانم ☐ بله ☐ خیر	آیا بیماران رادیوانکولوژی که دیگر بیماران را میبینند، ماسک میزنند؟	۱۳
☐ نمیدانم ☐ بله ☐ خیر	آیا شما زمانی که با بیماران رادیوانکولوژی در تماس هستید از تجهیزات حفاظت شخصی (PPE) استفاده میکنید؟	۱۴
☐ بله ☐ خیر	آیا شما آنچه را دیگران لمس میکنند، تمیز میکنید؟ (کی بوردها، دستگیره دربها، کلیدهای برق و ...)	۱۵
☐ بله ☐ خیر	آیا شما هوای اتاقهای معاینه را تهویه میکنید؟	۱۶
☐ بله ☐ خیر	آیا شما هوای اتاقهای انتظار بیمار را تهویه میکنید؟	۱۷
☐ بله ☐ خیر	آیا شما هوای اتاقهای اپراتوری را تهویه میکنید؟	۱۸
☐ بله ☐ خیر	آیا شما هوای اتاقهای درمان را تهویه میکنید؟	۱۹
☐ بله ☐ خیر	آیا شما هوای اتاقهای استراحت کارمندان را تهویه میکنید؟	۲۰
☐ نمیدانم ☐ بله ☐ خیر	آیا فاصله اجتماعی بین بیماران حفظ میشود؟	۲۱
☐ نمیدانم ☐ بله ☐ خیر	آیا فاصله اجتماعی بین کارکنان در حین کار، حفظ میشود؟	۲۲
☐ نمیدانم ☐ بله ☐ خیر	آیا فاصله اجتماعی بین کارکنان در حین استراحت حفظ میشود؟	۲۳
☐ بله ☐ خیر	آیا زمان درمان پرتوی به دو قسمت ساعتهای سرپایی و بستری تقسیم شده است؟	۲۴
☐ بله ☐ خیر ☐ دیگر	آیا شما تاریخ های پیگیری بیمار را به تأخیر انداخته اید؟	۲۵
☐ بله ☐ خیر	آیا در صورت امکان، شروع رادیوانکولوژی را به تعویق انداخته اید؟	۲۶
☐ بله ☐ خیر	آیا در بین بیماران بخش رادیوانکولوژی شما موارد کووید ۱۹ رخ داده است؟	۲۷
☐ بله ☐ خیر	آیا در بین کارمندان بخش رادیوانکولوژی شما موارد کووید ۱۹ رخ داده است؟	۲۸
☐ بله ☐ خیر	آیا در موسسه شما و خارج بخش رادیوانکولوژی، مواردی از کووید ۱۹ رخ داده است؟	۲۹