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CHEMOTHERAPY TRAINING MODEL TO IMPROVE NURSE COMPETENCE IN THE NEW LIFE ORDER ERA

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ABSTRACT

Chemotherapy is one of treatments given to cancer patient which may cause potentially fatal side effect, death. Chemotherapy treatment is provided in an area with staffs trained in giving service based on the guidelines for treatment, preventing side effect and implication of the chemotherapy. The occurrence of Covid-19 pandemic requires the community to apply the new life order, including causing training as a learning process to have adjustment. This qualitative research aimed at examining the chemotherapy training model which may be implemented to nurses to improve their competence in the new life order situation and condition. Focus Group Discussion was carried out with the executing nurses who had participated in chemotherapy training before the Covid-19 pandemic and in-depth interview was carried out with hospital medical staffs and room leader of oncological service room at the Hospital, and partner doctors. The results of FGD and interview were analyzed by summarizing, categorizing and making themes, designing them into a chemotherapy training model as needed by nurses to improve their competence. The materials and theories of chemotherapy training were delivered on an electronic based. The skill materials should, otherwise, be delivered face-to-face. The nurses stated that direct learning in service site made it easier for them to understand the materials. Learning was carried out in small groups through role play, and mentoring/coaching was also a learning method that was necessarily taken into consideration. Face-to-face method improved the competence better, but with the Covid-19 pandemic situation, of which end was yet unknown, and the new life order condition, the training model built should keep considering the health and safety of patients, health workers and training participants.

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INTRODUCTION

Cancer is a non-contagious disease that is the main cause of death. Cancer is the most important barrier to improved life expectancy in every country in the world in the 21st century, overcoming death resulting from stroke and heart disease in many countries (Bray et al., 2018). The burden of

cancer incidents and deaths develops rapidly all over the world, regardless of human development level. In 2020 it was shown that 19.3 million new patients were diagnosed with cancer and there were almost 10 million death from cancer (Sung et al., 2021). Cancer patients experience various symptoms that will affect their quality of life. Sufficient symptom management will help alleviate suffering and improve the quality of life of cancer patients in doing their daily activities (Nayak et al., 2017).

Chemotherapy is one of the treatments for cancer patients with risks of simple to fatal side effects death. Chemotherapy's side effects emerge because chemotherapy medicines do not only destroy cancer cells, but also attack healthy cells (Firmansyah, Khambri, Edison, & Rofinda, 2015) Therefore, chemotherapy must be administered in a health care facility that complies with designated standards and by competent health workers based on the guidelines on prevention and treatment of side effects and implications of chemotherapy (Cushen, Bacon, & Roddis, 2002) ASHP Guidelines on (Bernabeu-Martínez et al., 2018) (von Grünigen, Geissbühler, & Bonnabry, 2022). The existence of cancer treatment service in a health facility is unnecessarily a problem in cancer handling. Building cancer treatment facilities is, therefore, important to control cancer (Sung et al., 2021).

Training is a learning process to improve cognitive ability (knowledge), emotion (attitude) and psychomotor (behavior) and to prepare employees in the face of changes in solving constraints while doing works (Muhammad Darari Bariqi, 2018). Organizations are becoming more aware that training is not cheap investment, thus organizations expect to gain return of investment by improving employees' performance. Various training methods are needed as the most effective medium to deliver information accurately to training participants (Jevana, 2017). Leaders of hospitals, that are unique organization, must drive improvement of their human resource's capability through training (Zhong et al., 2019). Therefore, researches and development of training aiming at optimizing training benefits are very important.

Based on the Performance Report of RSUD Dr. Soetomo, malignant neoplasama breast was the most disease diagnose in 2019-2021. RSUD Dr. Soetomo's Strategic Plan in 2019-2024 designated cancer service as one of its featured services. Education and Training Division is responsible for improving human resource's competence in meeting the standards for chemotherapy.

Previous research states that chemotherapy training is interactive with package system in the form of CD ROM, made available for every Personal Computer, thus all health nursing professionals involved in the service can participate in the training pursuant to their preferred time. This may improve patient safety, given there was death of chemotherapy patient in the hospital (Cushen et al., 2002).

The most effective training method is in-class training since the participants have the chance to interact with instructor and they can share their knowledge with each other, and there are direct feedbacks from instructor during training. However, in the next 10 years, based on the data collected by the Association for Talent Development, some big organizations have e-Learning techniques (Jevana, 2017). Internet, global cooperation and inter-cultural awareness have big impact on training implementation and the organizations in the last 10 years. New skills and capabilities, and probably new ways of learning, are needed. The travel to training site requires time and cost from the organizations. It is necessary to adopt technology based training methods for cost efficiency and improved communication, even if employees are used to face-to-face training (Zeuch, 2016).

Given that Covid-19 is easily transmitted and most of the cases are accompanied with infection, face-to-face interaction in a big population, like lecture, is not recommended that it may become a cluster for the disease to be disseminated and transmitted. It is undeniable that the medical crisis resulting from Covid-19 pandemic will affect medical training (Liang, Ooi, & Wang, 2020). The lockdown policy during the Covid-19 pandemic forced the education world to follow the advancement of technology, learning theories and changes in educational needs. Anesthesia training in the 6 continents reported reduced cases, sub-specialist experience and supervisory procedure for activity implementation which might disturb learning. Cancellations of educational activities, delayed exams, and altered rotations threatened advancement through training (Sneyd). Emergency measures must be taken to minimize such disturbance. Technology may become a choice to facilitate medical

instruction and training that emphasizes skills such as open communication and medicine ethics (Liang et al., 2020). Mixed learning programs that use technology in combination with traditional learning, that integrate face-to-face interaction and technology mediated interaction, have positive impact on improved capacity of learning participants (Sundari, Savitri, & Emilia, 2015). Some researches report that learning with blended learning produces the same skill practice (output) with traditional (face-to-face) learning (Martínez-Isasi et al., 2021).

Until now, there is no qualitative research on chemotherapy training model that is in line with the new life order era. The Education and Training Division should develop a training implementation model that is all this time carried out face-to-face in consideration of the objective of training, that is to deliver information of learning effectively, efficiently, and to improve employees' knowledge, skills and attitude and maintain common safety given that Covid-19 pandemic has not ended and the application in the new life order era later and the use of more advanced technology of information.

METHODS

This qualitative research used a case study design. The data were collected through Focus Group Discussion (FGD) and interview. The research respondents were the implementing nurses who had participated in chemotherapy training before Covid-19 pandemic. In-depth interview was conducted with hospital staffs, including medical staff of Surgical Oncologist and room leader of oncology service room, both were chemotherapy training spokespersons, and partner doctor who was a national trainer. The results of FGD and in-depth interview would be designed to be a chemotherapy training model to improve nurse competence in adaptation to the new life order.

The research subjects were 6 implementing nurses who had participated in face-to-face chemotherapy training carried out the last time before Covid-19 pandemic. Besides, the research subjects also involved 3 hospital staffs as respondents, composed of medical staff of Surgical Oncologist and Room Leader assigned at the Oncology service room, both were chemotherapy training spokespersons from RSUD Dr. Soetomo. The other participant was of medical staff, who was a trainer at national level.

The research participants were 6 people consisting of nurses who had participated in chemotherapy training at RSUD Dr. Soetomo Surabaya. The implementing nurses were chosen by distributing forms of undertaking to be respondent to the implementing nurses who had had face-to-face chemotherapy training in the last training before Covid-19 pandemic. The inclusion criteria for participants in the research were nurses who were still actively working at RSUD Dr. Soetomo; nurses who had participated in chemotherapy training; room leader as the spokesperson of Chemotherapy Training in RSUD Dr. Soetomo; medical staff serving as spokesperson of Chemotherapy Training in RSUD Dr. Soetomo; staff RSUD Dr. Soetomo serving as trainer/spokesperson in a competence-based training at national level.

The research instruments were FGD guide and in-depth interview guide in the form of list of questions for FGD and in-depth interview pursuant to the research variables to collect data from the chosen respondents. The measures in making the research instruments were as follows:

a. Determine the purpose of FGD and in-depth interview
b. Make list of questions for FGD and interview. The list of questions served as a guide so that the questions asked were in line with the research objective.
c. Select questions that are in line with research variables. Although the questions were in line with the research variables, the questions may develop pursuant to participants' response, thus probing was necessary (following up respondents' response with further, more detailed questions).
d. Arrange FGD and in-depth interview guides for the research. It is necessary to make interview guide to ensure that the data needed were sufficient, including data of interviewee and list of questions to be asked.
e. Perform validity and reliability tests on the research instruments;
f. Prepare facilities and infrastructures needed in interview.

The validity test in this qualitative research was carried out by performing an audit trail on 13 January 2022 by advisor based on the result of FGD transcript. The results of audit trail from advisor found possible bias in FGD by the researcher on the nurses since the researcher in the FGD also served as a facilitator, with a position in the hospital's organization structure as a Head of Division, that it was possible that during FGD the FGD participants responded under intimidation.

Based on the results of discussion with the advisor, it was recommended to do triangulation. Triangulation means checking the data from various sources in various ways and times. This research used two triangulations, namely method triangulation and source triangulation, as recommended by the advisor.

a. Method Triangulation

Method triangulation for testing data credibility was carried out by checking the data against the source with a different method. The method triangulation was carried out through in-depth interview with 2 (two) nurses who had been FGD participants.

b. Source Triangulation

Source triangulation for testing data credibility was carried out by checking the data against several sources. These participants were :

1) Surgical Oncologist, as spokesperson of internal oncology training in RSUD Dr. Soetomo
2) Oncology Room Leader, as spokesperson of internal oncology training in RSUD Dr. Soetomo
3) Obstetrician and Gynecologist, as trainer of competence-based training at national level
4) Data were collected until data saturation and discussed with advisor.
5) An assistant was assigned for interview with the staff in the organization structure in avoidance of bias. The criteria for the research assistant were determined by the advisor, including Bachelor of Public Health (Sarjana Kesehatan Masyarakat-SKM) education trained by the researcher for the interview.

This qualitative research used thematic analysis for data analysis. The verbatim transcript resulting from FGD and in-depth interview was identified for theme, that was then explored for association. The results of qualitative data analysis from FGD and in-depth interview were made into verbatim transcript and analyzed manually. The manual data analysis was carried out through open coding, axial coding and theme making. The Nvivo application was also applied for comparison with manual data analysis.

RESULTS AND DISCUSSION

A. Result

The research was carried out in November 2021–March 2022, while the data were collected in November 2021–January 2022 through focus group discussion (FGD) and interview. FGD was carried out 1 (one) time with 6 (six) nurses who had had chemotherapy training in 2020 face-to-face before Covid-19 pandemic. Meanwhile, there were 3 participants of in-depth interview consisting of medical staff of Surgical Oncologist, senior nurse serving as Oncology Room Leader and medical staff who was a spokesperson of national training.

Table 1. Respondents' Demographic Data

No	Participant	Sex		Age			Education				Period of Working		
		L	P	35-45	46-55	56-65	D3	S1	S2	S3	< 15 years	15-25 years	>25 years
1	Respondent 1		1	1			1					1	
2	Respondent 2	l		1			1						1

3	Respondent 3		1		1		1						1
4	Respondent 4		1		1			1				1	
5	Respondent 5		1		1		1						1
6	Respondent 6		1		1		1					1	
7	Respondent 7		1			1				1			1
8	Respondent 8		1		1			1					1
9	Respondent 9	1				1			1				1
	Total	**2**	**7**	**2**	**5**	**2**	**5**	**2**	**1**	**1**		**3**	**6**

The data show that most of the respondents were female, of 7 respondents. The largest age group was of 46-55 years old, of 5 respondents. Most of the respondents' last education was D3 of 5 people. The largest group with the longest working period was over 25 years, of 6 people.

B. Discussion

1. Improved attitude, knowledge and skills

Oncology nursing is a complex one, becoming more complex in line with available new nursing choices and technology. American-based oncology nursing practitioners supported patient-centered nursing. The purpose of oncology nursing practitioners' competence was to create a quality nursing standard in various practices and geographical settings, that are very important in giving high quality clinical cancer nursing (Coombs et al., 2020).

This research shows that the respondents felt the benefit of chemotherapy training they had participated in before Covid-19 pandemic in improving their attitude, knowledge and skills. In the respondents' opinion, chemotherapy training helped synchronize perception between one room and the other of how to provide chemotherapy service pursuant to SPO. In addition, with high understanding of the toxicity of chemotherapy medicines, the respondents stated they gave chemotherapy services more elaborately and carefully, so as to give safe chemotherapy medicines to patients and health workers, and that nothing unwanted would happen, as in the quote of respondent's statement below.

With the so big impact of chemotherapy medicines on our body, especially for nurses in performing chemotherapy, with the training we would give chemotherapy to patient more cautiously and carefully (Respondent 4 FGD, female 46 years old, 8).

The American Society of Health System Pharmacists defines chemotherapy as harmful medicines that show genotoxicity, carcinogenicity, fertility disorder, serious organ, or other toxicity manifestations at low dose on animal and human. The researchers have shown that the side effects related to chemotherapy cancer medicines may occur with patients and those involved in the treatment chain (Pharmacists, 2006) (Bernabeu-Martínez et al., 2018) (von Grünigen et al., 2022). A nurse's competence in giving chemotherapy is the important component to ensure patient and nurse safety from the harm of cytotoxic medicines, and give high quality nursing (Thu, Embuai, & Siauta, 2016).

2. Constraints in chemotherapy training

Chemotherapy management is a sensitive area of oncology nursing practice, since any least mistake or negligence may have bad impact on patient, staff and environment, especially in preparation, management, spillage cleaning and disposal processes. In practice, patient's chemotherapy medicine waste poses the biggest risk of work to nurse (Sylvia E Nwagbo, Rose Ekama Ilesanmi, Beatrice M Ohaeri, 2017). Therefore, knowledge is very important in support of safe nursing practice and is important in case lack of nursing knowledge threatens nurse and patient safety (VerStrate, 2015).

Every individual has the capability to keep learning or training. This, however, depends on the individual's preparedness and requires social support from the organization or work place (Jain & Martindale, 2012). A nurse must be prepared to give good responses and actions to both adult and child chemotherapy patients (Linnard-Palmer, 2012). Expected administration of chemotherapy training through education and training

a. Material

In the data from the focus discussion respondents, they expected material for handling burn from chemotherapy medicine, also latest chemotherapy in developed countries and chemotherapy for children and the specifications. Based on interview with the respondent as spokesperson of chemotherapy training, materials related to nutrition for cancer patients who received chemotherapy and nursing from psychiatric aspect were also needed. But the unavailable materials are about training on child chemotherapy and its specifications (Respondent 3 FGD, female 55 years old, 60)

Then add with nutrition content. I think there is none about nutrition, in the material content. So, about what food are for them, since we know that people given chemotherapy will be dizzy, nauseous, vomiting, and so on. Seeing food they will make them not like it. Thus, if they don't like it, how can they get nutrition for themselves. So, there are certain foods which should be cold, and not to be chewed much, that the more they are chewed, our saliva will come out much more.

And then maybe more additional content about nursing of psychiatric aspect, that is still unavailable. (Respondent of In-depth Interview, female doctor 60 years old, 6).

In the Training Accreditation Information System of the Health Resource Training Center Body, it explains the curriculum of chemotherapy training materials, that are policies on cancer patient service standards, basic concept of giving chemotherapy to cancer patient, pathophysiology of cancer cells, centered chemotherapy medicine mixing, chemotherapy medicine administration, extravasation handling, chemotherapy spillage handling, education for cancer patient with chemotherapy, nursing treatment for cancer patient with chemotherapy (Education and Training division of RS Cancer "Dharmais," 2019).

b. Duration of training implementation

Time is an important resource in designing and giving training, and determining whether a training is effective. If training is insufficient to learn and transfer new skills, the needs identified in the analysis on training needs will not be satisfied, training objective not achieved, and training fund wasted. As an important issue in training program design, training literatures explain a little about how to determine the effective duration of a training program. There are very few articles explaining learning process, or in what condition learning requires more or less time.

A learning process that requires training, like behavioral skill training, requires longer duration than those that does not requires it, since repetition is needed until steps are done correctly (Cole, 2008). The results of interview with the research respondents state that training duration is determined from training topic and objective, also in consideration of the bore aspect.

In practice, however, it may be longer, that we can go to chemotherapy room for direct practice (Respondent 1 FGD, female nurse, 41 years old, 68). The last chemotherapy

training that I participated in was about 3 days, it was only for theories and workshop, for lab. Maybe additional days were necessary, so not all training participants were from chemotherapy room, that they were from general in-patient nursing room (Respondent 2 FGD, male nurse, 44 years old, 70)

c. Training method needed

FGD data found that training with direct practice in the field is needed more than merely listening to theoretical materials. Maybe we need survey or practice in a room with chemotherapy patients for 1-2 days, that may be necessary (Respondent 2 FGD, male nurse 44 years old, 70).

Some FGD respondents and also interview respondents stated the necessity of division into small groups so that the facilitator could examine the participants' capability. Learning through small group teaching method facilitates useful academic environment, and more maximum learning than course-based learning. Small group teaching gives participants the opportunity to work collaboratively and promote team building skill. This is an important skill to work in health nursing setting (Burgess, van Diggele, & Mellis, 2019).

In my opinion, it should be small group, given we are now in the pandemic. It is impractical for many of us to gather like we used to do. I experienced it at the time. Maybe small groups of four. (Respondent 2 In-depth Interview, female 53 years old).

The smaller, the better, small group is more effective. The instructor will know the participants better, leading to more intense interaction. Actually, it is more about the way of delivery (Respondent 7 Interview, female doctor 60 years old, 10).

The results of interview with respondents in role play (peer role play), mentoring or coaching are also expected to be a method in chemotherapy training, also with videos. Role play is a simulation-based teaching method that is acknowledged in health education. The reason is that involving learners in role play as patient will train them in a useful situation to improve participants' communication skill in facing the same condition in clinical practice, and the most important thing is empathy (Gellis et al., 2019). Scenarios and role plays, each participant has a task according to the agreement and a facilitator who fosters a pleasant learning atmosphere will support effective learning (Kusumo & Kusumawati, 2022). So now maybe before starting, in training, besides directly with spokesperson, it's like internship. Maybe with colleagues in their working environment, of course as one in charge it remains the same, the main nurse. But, he/she is under the guidance, at least just like we serve as assistant before operation (Respondent 7 Interview, female doctor 60 years old, 4)

Maybe doing assistance first, applying the knowledge, and under supervision by the leader or unit, or by coordinator. When everything runs smoothly, then they can operate on their own. To my observation, that is what to remind of (Respondent 9 Interview, male 68 years old, 12)

So we have theories, practices, and role plays. About the role play, let's say, there are some cases for chemotherapy with this type of medicine, how to handle it, how about the end, we have discussion, that's it, inter-group discussion (Respondent 8 Interview, female nurse 54 years old, 14)

Oh sorry, by theory, we can insert the videos, we can watch it visually. When there is a patient, we can just apply what we have watched in the video to the patient (Respondent 2 In-depth Interview, female 55 years old, 8)

Respondents stated that video is a teaching medium that can support understanding the material. Cone of Experience Edgar Dale, stated that learning achievement by reading is 10%, by listening 20%, by seeing pictures 30%, by listening and watching videos and demonstrations 50%, 70% by participating in discussions, group study and workshops, 90% with learning model simulations and presentations (Listiarsasih, 2016). One of the visual aids is video as a learning media to help facilitate understanding of learning (Kusumo & Kusumawati, 2022) Practice instrument.

The respondents expected the mannequin was available for practicing infusion correctly. A research states that simulation based training using mannequin was interesting for social and health student since this approach allowed them to learn through real performance of duties (Aarkrog, 2019). The advantage of simulation scenario than role-playing, which also involves actual performance of duties, is that it gives understanding of high accuracy of how mannequin will look like and behave, and room instruments (Aarkrog, 2019). Maybe additional duration of training with mannequin is needed, for training of installing infusion well and correctly (Respondent 2 FGD Nurse, male 44 years old, 106).

The use of teaching aids is one of the learning methods that fosters a way of thinking and develops a learning environment (Kusumo & Kusumawati, 2022). When deemed as patient, mannequin can give students realistic experience of what it means to behave like a nurse. Consequently, this realism allows student to practice and gain relational, communicative, collaborative nursing skills. Using mannequin can facilitate student's professional identity development (Handeland, Prinz, Ekra, & Fossum, 2021). Chemotherapy training participants

Training will be effective if the training participants meet the requirements. The participants of training must be aware of why they should learn something, have their own desire, have learning motivation, covering extrinsic and intrinsic factors. Education and training participants must have basic skills, and cognitive ability (Wiliandari, 2015). Two interviewees, who were doctors and clinical educators, stated that besides the requirements of Clinical Nurse 2, the supervisor of nurses as potential participants can score the performance of potential training participants. It is important to note that potential participants have motivation to improve their capacity. About special requirements, we should synchronize them with the accreditation, the needs. It is possible that the individual of PK 2 have skilled hands, but since he/she is newcomer, he/she cannot jump to 3. This means that as supervisor we should be aware about him/her, "o, despite being a newcomer, but he/she is skilled". (Respondent 8 Interview, female doctor 60 years old, 12)

d. Continuous training

Continuous training is basically the opportunity given by an organization to its employees to ensure that they are learning throughout their life and, thus, improve their skills. This, in turn, improves the employees' performance and the organization's productivity. Training as continuous learning is evidently a mutually benefitting situation for both the organization, that is the employer, and the employees, helping individuals build appropriate inter-personal relations both in and out of the organization (Agarwal, Schuurmans, & Norouzi, 2020).

Some respondents from the research FGD gave suggestions to administer chemotherapy training continuously, covering all rooms because of the rotation system in duty designation. Practitioners' knowledge and skills significantly determine the level and risk of contamination in nursing chain. Therefore, knowledge of chemotherapy and its delivery guidelines need to be continuously, regularly updated. One method of updating knowledge of chemotherapy is training (Sylvia E Nwagbo, Rose Ekama Ilesanmi, Beatrice M Ohaeri, 2017).

3. Training Outcome Evaluation

According to the respondents, the spokespersons of the chemotherapy training sessions were nice, good, and smart. Only one respondent stated that the spokespersons should deliver materials in a varied way, not monotonously, as in the quote below:

In my opinion, the spokespersons who gave materials and chemotherapy training varied. Some giving materials and explaining the materials and we followed them well, but the other was monotonous, like reading theory book, it's about variation (Respondent 3 FGD Nurse, female 55 years old, 120).

Medicine science is knowledge that needs to be disseminated and translated in improving local, regional and global communities' quality of life. A good teacher is one capable of playing role effectively as facilitator in training students and participants to achieve the objective of education/training. There are six competences of ideal medicine teacher, including:

a. Passion: never ending, dedicated to working and focusing on student's and teacher's needs.
b. Respect: understanding, encouraging and taking care of varied people, thoughts, and ideas.
c. Integrity: giving example with high ethical standard and being honest with professional and social needs.
d. Motivation: showing care, love, and respect to students and peers, as the first assistance.
e. Creating good learning environment: improving effective communication, skilled expression, constructive feedback, mutual trust, team work, and strategic thinking.
f. Leadership: participating in design of curriculum, structure, teaching strategy, publication and development of new knowledge (Bani & Ageely, 2011).

The spokespersons explained the theories pretty well, but with regard to time, some were late, and timeliness was still lacking. Thank you (Respondent 2 FGD, male nurse 44 years old, 118)

Presenters in the training, first, must master the science. If possible, the science and theories as well as cases along with settlement with various alternatives, including cases of almost death but saved because of the performance and good coordination of nurses or medics, the always correct ones get thumbs up, and these should be appreciated so that in the future, in case of the same case, we will do it in such way, thus there are real cases given. Second, it's about talent, whether material presentation is interesting, easy to understand and the participants are happy with it that names are often mentioned in the interaction (Respondent 9 Interview, male 68 years old, 44)

The data from interviewee state that evaluation must be performed, to examine whether the training is a success, and the extent the participants understand. Besides at the end of training with posttest, evaluation is also performed at the beginning of training, regarding questions of pretest that the participants hardly understand, thus the materials can be emphasized more.

I think pretest is necessary to find out the extent the participants understand the materials given and the least we understand, what skills can be done, by making a narration of skill order, thus if many have understood, we don't need to give the basics, just the advanced things that we need to add and emphasize (Respondent 8 Interview, male doctor, 68 years old

There should be pretest and posttest in the training for us to know how the participants actually are. Most importantly, their understanding of the chemotherapy materials. And we need to see the posttest, whether the training given is useful or not. Indeed, there should be difference (Respondent In-depth Interview, female doctor 60 years old)

Evaluating a training program is often considered as the last part, while it is actually the initial part of design and delivery process. evaluating takes time, but is important to do, since evaluation will give continuous corrective data for training program, ensuring what to change in the training program, type of assistance participants need after returning to their duties, and any existing constraints which may hinder training implementation (Silberman & Biech, 2015).

4. Training During Pandemic

The respondents stated that they participated in training and activities to improve their capacity during pandemic on an online basis. Besides improving and renewing knowledge, the respondents are aware that they must do it, willing or not, since fulfillment of such need must be performed online, as in the quotes below:

First, information must be given. Is the life order new or else? Previously, from the early of covid-19 to decline of new normal, it was explained, thus each nurse assigned had the same understanding. This includes non-medical staffs, it would be good to give them superficial knowledge, thus if anything, they can give initial explanation, that will be helpful, saying to me

they will lead to competent hospital officer, brought to patient assisting officer, previously a post, and brought there (Respondent 8 Interview, male doctor, 68 years old, 14)

For presenters of skill, the number should be limited, for example, number this through that for these days, number this through that at this time, and afterwards at that time. This is for compliance with the health protocol. But not, "I got infected with covid, let's have education and training". Oh no, it will not be good if we behave like that (Respondent 6 Interview, female doctor. 60 years old, 20)

During the pandemic, I could participate in trainings online, and in Dr. Soetomo it was the last K3 training that I participated in (Respondent 1, 41 years old, female).

Covid-19 pandemic had changed clinical services and training for participants. All aspects of training program were affected. The number of cases besides Covid-19 declined, sub-specialization experience lacked, and cancellation of education activities, delayed exam and changes in rotation threatened training progress. In response, anesthesiologists have innovated in teaching and supporting training participants. New technology supports trainer-to-trainer interaction with focus on e-learning (Zhang & Ma, 2020).

5. Strengths and Weaknesses of Online Training During Pandemic

Respondents' data state that chemotherapy training will be implemented better offline, especially for skill materials.

The weaknesses of online training and competence based training during pandemic are difficult login, low learning motivation, no direct communication with other participants, etc. (Szadziewska & Kujawski, 2017). The other constraints of online learning are academic skill, technical skill, learning motivation, time and support for study, technical matters, cost and internet access (Wu, 2019).

Effective online-based learning depends on the interests of the learner, interesting content according to the needs of the learner, and the material is easily accessible at all times (Sundari et al., 2015). The design principles of digital learning materials, learning objective and student's preferences and characteristics must be evaluated strictly for effectiveness of online learning (Wu, 2019).

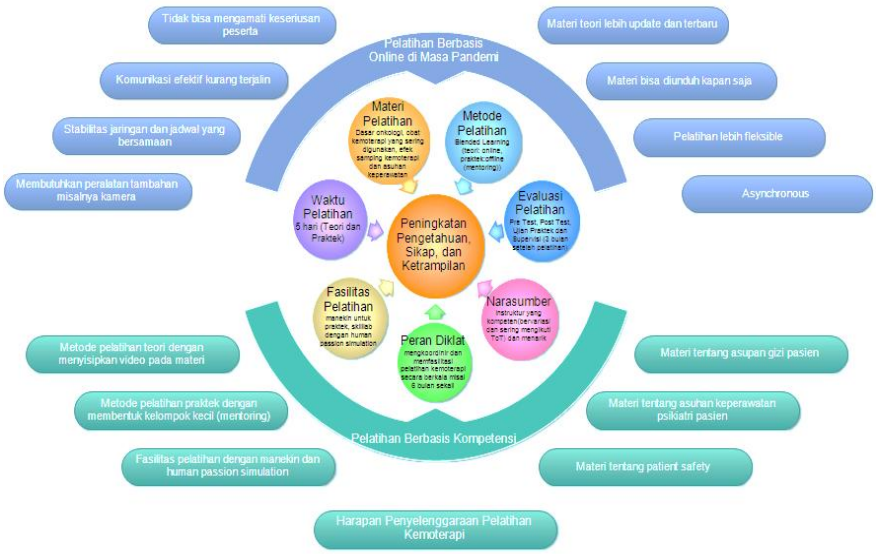

Figure 2. Competence based chemotherapy training model during pandemic

CONCLUSION

The chemotherapy training model needed by the nurses is a training model that involves training participant and patient directly in the field. Current condition is not the same, with existence

of Covid-19, thus online theories and offline skills delivery must be under strict consideration of ethics and health protocol for the safety of health workers, training participants and patients nursed.

One factor that forms the competence-based training model needed by the nurses to improve their competence is human resource with high motivation for service improvement. The chemotherapy training model was with blended learning. The theoretical materials were delivered online with norms as in online training. Skill material/practice was performed offline by forming small groups, with role play, mentoring, and direct practice in service room.

Training evaluation was carried out with pretest and posttest to examine the cognition improvement. Regarding pretest, it was necessary to analyze it to find out the materials that need to be delivered Indonesia detail. Posttest questions were not the same with pretest questions, but contained the same content/intention/equality. Practice exam was carried out to improve skill, and observation was carried out after 3 months of training to examine any changes in attitude.

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