Android-Based Education on Self-Care Ability in Improving the Quality of Life of Gynecological Cancer Patients with Chemotherapy: Literature Review

Nursalam Nursalam¹, A Watiful Azza²,³, Chanif²,⁴, Erna Dwi Wahyuni¹,², Machmudah²,⁴, Nurus Safaah²,⁵, Sri Utami²,³, Tiyas Kusumaningrum¹,², Wiwit Dwi Nurbadriyah²,⁷

¹Faculty of Nursing Universitas Airlangga Surabaya Indonesia, ²Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, ³Universitas Muhammadiyah Jember, ⁴Universitas Muhammadiyah Semarang, ⁵Institut Ilmu Kesehatan Nahdlatul Ulama Tuban, ⁶Universitas Riau Pekanbaru, ⁷STIKes Kepanjen Malang Indonesia

DOI: 10.29322/IJSRP.12.09.2022.p12902
http://dx.doi.org/10.29322/IJSRP.12.09.2022.p12902

Paper Received Date: 13th July 2022
Paper Acceptance Date: 29th August 2022
Paper Publication Date: 6th September 2022

Abstract- Gynecological cancer is the most common type of malignancy in women such as cervical, endometrial and ovarian cancer which is the most common and has major effects worldwide in terms of incidence and mortality. Chemotherapy as the main therapy given to gynecologic cancer patients causes various side effects and complications. Interventions in the form of health education, symptom management and psychological social support are important elements in the treatment process. Through android-based education with various easily accessible intervention features with the aim of providing evidence-based information related to cancer, physical and emotional care, and support which is expected to increase understanding and also patient motivation to follow chemotherapy programs properly, so that self-care abilities and quality of life of gynecologic cancer patients with chemotherapy can be achieved. Objective: to describe the use of android-based educational applications on self-care abilities to improve the quality of life of gynecologic cancer patients. Methods: using literature study with observational and descriptive methods using 30 research journals that are in accordance with the topics raised. Journal search using Science direct database and Google Scholar. Results: Android-based educational applications are effective and useful in providing health education, and can have a positive impact on improving health quality, both physically and psychologically, socially. Recommendation: Android-based educational applications are very possible to use in Indonesia to support gynecological cancer services.

Index Terms- Education, Android, Self Care, Quality of Life, Gynecological Cancer, Chemotherapy.

I. INTRODUCTION

Gynecological cancer is the most common type of malignancy in women, with approximately 1.309 million newly diagnosed cases per year. Cervical, endometrial and ovarian cancers are the most common gynecologic malignancies and have major effects worldwide in terms of incidence and mortality. (International Agency for Research on Cancer, 2020; Ngu et al., 2021; Yeh et al., 2021; (Hung et al., 2022). One of the many treatments given to gynecologic cancer patients is chemotherapy (Hermanto et al., 2021), but this treatment has various side effects both physically and psychologically for patients who undergo it (Afiyanti et al., 2019; Hermanto et al., 2021; Nuwa & Kiik, 2020). Another impact of chemotherapy is to reduce the patient’s self-care ability (Gholap et al., 2019; Haryani et al., 2017). Limitations of self-care occur due to the lack of information delivery to patients and families about daily self-care due to illness and the therapy they are undergoing (Taylor & Renpenning, 2011). Self-care is a form of relationship between knowledge and action (Masmooi et al., 2019). To get good self-care, patients with chemotherapy need to get education to improve their knowledge. Education that has been given to chemotherapy patients in hospitals is given orally, and using media that still uses paper, such as leaflets or booklets.

In conditions of the COVID-19 pandemic, it is not recommended to provide face-to-face education programs (Richards et al., 2019), so it is necessary to update educational methods that are easier and more convenient to access and efficient, one of which is with a mobile application (application) as an easily accessible alternative to support patients (Lin et al., 2021). Referring to this, it is necessary to develop android-based educational media in improving self-care skills in improving the quality of life of gynecological cancer patients with chemotherapy.

Gynecological cancer patients receiving chemotherapy often report various things about the effects of chemotherapy. The most common symptoms as side effects that appear in gynecologic cancer patients undergoing chemotherapy are pain, nausea, vomiting and fatigue. About 80–100% of patients with gynecological cancer experience fatigue (Mulhaeriah et al., 2018). Research result Chan & Ismail (2014) reported the effects of chemotherapy were nausea (83.3%) and vomiting (78.9%), dry mouth or thirst (73.3%), hair loss (64.4%), fatigue or weakness (56.7%), loss of appetite (56.7%) and chills (56.7%), and reduced sense of touch (40.0%).
Some of the other impacts of gynecological cancer patients with chemotherapy are on psychosocial problems: psychological stress, depression and anxiety, and chemotherapy stress disorders. (Milanti et al., 2016), confusion or loss of concentration (43.3%), sadness or depression 43.3% (Chan & Ismail, 2014). Some of these side effects if they occur can cause discomfort and decreased self-care ability, and can also cause a decrease in the quality of life of gynecological cancer patients with chemotherapy. (Afiyanti et al., 2019; Gholap et al., 2019; Osann et al., 2014; Yeh, 2021). A study reported that the self-care ability of patients undergoing chemotherapy, mostly in the moderate category (67.78%), and more than 13.15% in the poor category. (Gholap et al., 2019). Self-care needs in the physical domain include the need to cope with physical symptoms, medication side effects, and to maintain activities of daily living (Afiyanti et al., 2018).

Chemotherapy is used primarily to kill cancer cells and inhibit their development. The basic principle of chemotherapy is a class of drugs that have a cytotoxic effect so that they can inhibit cancer growth and some can even kill cancer cells. Chemotherapy works by damaging the DNA of rapidly dividing cells (Chu & DeVita, 2015; Hermanto et al., 2021). Long-term administration of chemotherapy drugs can increase their accumulation in the body thereby increasing side effects and producing toxicity in various organs, so that it can cause various symptoms both physically and psychologically. (de Sousa et al., 2014; Hermanto et al., 2021). Chemotherapy makes most patients who have been diagnosed with cancer feel worried, anxious and afraid to face the threat of death and pain while undergoing therapy. This situation causes an imbalance both physically and mentally experienced by cancer patients due to chemotherapy so that the patient's self-care becomes hampered and there is a self-care deficit.

Self-care needs that must be met by cancer patients with chemotherapy include universal self-care requisites, developmental self-care requisites, and health deviation requisites. Universal self-care requisites focus on the basic processes of human life, including maintenance of adequate air intake, fulfillment of fluid intake, nutrition, elimination and secretion, balance of activity and rest, and balance of individual needs and social interactions. Developmental self-care requisites focus on life cycle changes, including adaptation to the loss of something important, adaptation to bodily changes, and psychosocial and spiritual control during chemotherapy. Health deviation requisites are related to health care, including appropriate early treatment, meeting chemotherapy needs, and drug regimen with chemotherapy (Allison, 2007; Cavanagh, 1991). Self care in cancer patients with gynecology needs to be considered and fulfilled. Various studies have been conducted to overcome this, including cognitive-behavioral therapy, mindfulness meditation, progressive relaxation, guided imagination and music therapy. (Milanti et al., 2016; Nuwa & Kiik, 2020; Wang et al., 2018). Some of these interventions are still carried out separately and are carried out face-to-face between nurses/therapists and patients. To overcome these weaknesses, an educational application was developed, which is a mobile application that can be applied independently by patients according to their needs, this application is easily accessible and becomes a supportive therapy for patients with gynecologic cancer. Application-based intervention, developed based on the needs of gynecological cancer patients with chemotherapy and self care theory and disease theory, which consists of explanations accompanied by reminders and information on chemotherapy requirements for the next session. This android-based education aims to provide evidence-based information related to cancer, physical and emotional care, and support that is expected to increase understanding and also the motivation of patients to follow chemotherapy programs properly, so that self-care abilities and quality of life of gynecological cancer patients with chemotherapy can be achieved.

Based on the research journal above, several factors were found that did not work. So that researchers are interested in conducting a Literature Review Study on "Android-Based Education on Self-Care Ability in Improving the Quality of Life of Gynecological Cancer Patients With Chemotherapy".

II. METHODS

This study uses a literature review design, namely research that examines scientific articles by integrating and drawing conclusions about Android-Based Education on Self-Care Ability in Improving the Quality of Life of Gynecological Cancer Patients With Chemotherapy. The data used in this study is secondary data obtained not from direct observation, but from the results of research that has been done by previous researchers. Sources of research data obtained in the form of articles or journals that are relevant to the topic of Android-Based Education on Self-Care Ability in Improving the Quality of Life of Gynecological Cancer Patients With Chemotherapy. The data search was carried out using the Science Direct, Google Scholar database. The keywords used in this study are "Education, Android, Gynecological Cancer" OR "Self Care of Quality of Life" AND "Chemotherapy". Data analysis was carried out using literature review techniques including looking for similarities (compare), looking for dissimilarities (contrast), giving views (critite), compare (synthesize), and summarize.
In collecting articles on Android-Based Education on Self-Care Ability in Improving the Quality of Life of Gynecological Cancer Patients With Chemotherapy, the author conducted a search using keywords that had been compiled and after that selection was carried out and produced as many as 100 articles and then re-selected into only 30 articles. The articles that were re-selected were carried out a descriptive approach by covering the discussion requirements, namely in the form of an overview of the Android-Based Education on Self-Care Ability in Improving the Quality of Life of Gynecological Cancer Patients With Chemotherapy in 2021-2022. Based on a literature review conducted on 30 sources from national articles, the results obtained can be seen in table 1.
<table>
<thead>
<tr>
<th>No</th>
<th>Title</th>
<th>Author, year</th>
<th>Methods</th>
<th>Result</th>
<th>Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Effectiveness of Relaxation Breathing Exercise on fatigue in gynecological cancer patients undergoing chemotherapy</td>
<td>(Mulhaeriah et al., 2018)</td>
<td>Design: Quasi-experiment with pre- and post-test design.</td>
<td>RBE was more effective in reducing fatigue in patients with gynecologic cancer undergoing chemotherapy when administered four times a day rather than twice (with the mean difference was 0.91 (99% CI: 0.41e1.41; P 0.001). The results of this study can be used as a reference in the treatment of fatigue in patients with cancer because RBE is a non-pharmacological treatment that is non-invasive and easy to do by nurses and patients. Therefore, RBE can be used as the preferred standard procedure for gynecologic cancer patients undergoing chemotherapy</td>
<td>Science Direct</td>
</tr>
<tr>
<td>2</td>
<td>The Effect of the Mobile Application-Based Symptom Monitoring Process on the Symptom Control and Quality of Life in Breast Cancer Patient</td>
<td>(Ozeri et al., 2021)</td>
<td>Design: Single-center, randomized con-trolled trial with 2 parallel groups. Sample: 57 adult participants who were diagnosed with breast cancer, and met the inclusion and exclusion criteria Instrument: Patient Descriptive Information Form, ECOG Performance Scale, European Organization for Research and Treatment of Cancer-Quality of Life (EORTC-QLQ) C30 Scale, QLQ-BR23 Module, Memorial Symptom Assessment Scale (MSAS), Global Disstress Index (GDI). Analysis: Mann-Whitney U test, Chi2 test</td>
<td>Initially, 70 participants were divided into treatment and control groups. There were 7 people from the treatment group and 6 people from the control group who dropped out due to resigning, changing care, and getting a change in treatment protocol. Symptoms reported by participants were fatigue, changes in taste sensation, pain, insomnia, feeling sad, dry mouth, worry, dry and itchy skin, loss of appetite, hair loss, nausea and vomiting, canker sores, shallow breath, numbness in the palms and soles. Feet, diarrhea, and constipation There were significant differences in symptoms of nausea-vomiting after the intervention in the two groups, as well as functional scale, physical function, social function, general health score, symptom scale, weakness, nausea-vomiting, pain, loss of appetite, constipation, diarrhea, and financial difficulties. The process of monitoring symptoms with mobile apps is very effective in controlling physical symptoms.</td>
<td>Science Direct</td>
</tr>
<tr>
<td></td>
<td>Study Title</td>
<td>Design</td>
<td>Sample Size</td>
<td>Instrument</td>
<td>Analysis</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>3</td>
<td>Psychoeducational Intervention for Symptom Management of Fatigue, Pain, and Sleep Disturbance Cluster Among Cancer Patients: A Pilot Quasi-Experimental Study (Nguyen et al., 2018)</td>
<td>A parallel-group single-blind pilot quasi-experimental trial, with pretest and post-test design.</td>
<td>102 cancer patients</td>
<td>The Brief Fatigue Inventory, The Brief Pain Inventory, The Pittsburgh Sleep Quality Index, The Hospital Anxiety and Depression Scale (HADS), The EuroQol-5D-5L, Visual Analogue Scale, The Intervention Rating Profile15 (IRP-15), dan symptom self-management diary.</td>
<td>Student t test (Mann-Whitney U test) or Chi² test (Fisher exact test)</td>
</tr>
<tr>
<td>4</td>
<td>A Randomized Controlled Trial of mHealth Mindfulness Intervention for Cancer Patients and Informal Cancer Caregivers: A Feasibility Study Within an Integrated Health Care Delivery System. (Kubo et al., 2019)</td>
<td>Randomized Controlled Trial.</td>
<td>97 patients and 31 caregivers.</td>
<td>Headspace application, online surveys DatStat software, NCCN Distress Thermometer, Hospital Anxiety and Depression Scale (HADS)-14, The PROMIS Pain Intensity scale, PROMIS Sleep Disturbance scale, Functional Assessment of Cancer Therapy General Scale (FACT-G)-27, Caregiver Quality of Life Index–Cancer (CQOLC) scale, Brief Fatigue Inventory-9, Posttraumatic Growth Inventory (PTGI)-21, Five Facet Mindfulness Questionnaire–Short Form (FFMQ-SF)24, and phone interview</td>
<td>Cohen’s d effect size, software NVivo 12</td>
</tr>
<tr>
<td>No.</td>
<td>Title</td>
<td>Authors</td>
<td>Methodology</td>
<td>Results</td>
<td>Source</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>5</td>
<td>Telehealth System: a Randomized Controlled Trial Evaluating of An Internet-Based Exercise Intervention on Quality of Life, Pain, Muscle Strength, and Fatigue in Breast Cancer Survivors.</td>
<td>Galiano-Castillo et al., 2016</td>
<td>Design: Randomized controlled trial. Sample: 76 participants divided into treatment and control groups. Instrument: EORTC QLQ-C30, Brief Pain inventory, digital dynamometer, isometric abdominal test, analog back dynamometer (TKK 5002 Back-A), multiple sit-to-stand test, and the Piper Fatigue Scale (R-PFS). Analysis: analysis of covariance (ANCOVA)</td>
<td>The results of the study showed that after the intervention, the telerehabilitation group significantly improved global health status, physical, role, cognitive function and arm symptoms compared to the control group. Compliance with the program for 8 weeks was found in 93.9% of participants. Satisfaction with the program reached more than 97%.</td>
<td>Science Direct</td>
</tr>
<tr>
<td>6</td>
<td>The effect of nursing self-care educational intervention on depression in women with breast cancer undergoing post-mastectomy chemotherapy: A quasi-experimental study</td>
<td>Bouya et al., 2021</td>
<td>Design: Quasi-experimental study, pre-post test design. Samples: The sample size is 90 women with breast cancer who are undergoing post-mastectomy chemotherapy. Instrument: Beck Depression Inventory (BDI). Analysis: independent t-test, and paired t-test</td>
<td>The results showed that the intervention significantly reduced depression in the intervention group, but in this study, at the pretest there was a difference in the level of depression in the two groups. This intervention has the potential to be an effective and cost-effective adjunct therapy along with general care to reduce depression in women with breast cancer undergoing post-mastectomy chemotherapy.</td>
<td>Science Direct</td>
</tr>
<tr>
<td>7</td>
<td>Effects of a self-monitoring intervention in breast cancer patients suffering from taste alterations induced by chemotherapy: A randomized, parallel group-controlled trial</td>
<td>Kinjo et al., 2021</td>
<td>Design: Randomized controlled trial. Samples: 34 respondents, which were divided into 2 in the treatment and control groups. Instrument: Visual Analog Scale (VAS), chemotherapy-induced Taste Alterations Scale (CiTAS), QOL questionnaire for cancer patients treated with Anticancer Drugs (QOL-ACD), Cancer-therapy concerns rating scale (CCRS) for outpatients receiving chemotherapy, Distress and impact thermometer (DIT), Self-efficacy evaluation: SEAC Analysis: t-test and two way-ANOVA</td>
<td>There was an increase in the taste sensation score in the first post-intervention measurement in the treatment group, but decreased in the second measurement and increased slightly in the third measurement. This is different from the control group whose taste sensation scores always increase from the first measurement. There was an identified interaction between the two groups. The self-monitoring intervention reduces negative cognitions of altered taste sensations, increases taste sensation, and reduces anxiety. Self-management carried out by patients will indirectly improve quality of life and stabilize self-efficacy in breast cancer patients who receive chemotherapy and experience changes in taste sensation.</td>
<td>Science Direct</td>
</tr>
<tr>
<td>8</td>
<td>Reproductive Health Care Across the life course of The Female Cancer Patient</td>
<td>Rubinsak et al., 2019</td>
<td>Design: Single Item Screener. Sample: 516 participants</td>
<td>Study results: studies show reproductive health is a key component in the care of female patients with cancer. The population of patients with cancer continues to grow, and the proactive management of reproductive health problems is centered on providing</td>
<td>Science Direct</td>
</tr>
</tbody>
</table>
Samples: 148 participants, with a mean age of 52.17 years (range 20-75) and diagnosed with gynecological cancers (such as cervical, ovarian and endometrial).  
Instruments: SOC-13 item, Korean Form of Cancer Coping Questionnaire (K-CCQ), Hospital Anxiety and Depression Scale (HADS), Functional Assessment of Cancer Therapy-General Scale (FACT-G).  
Analysis: T-test and ANOVA, Pearson's correlation, mediation model test. | The most common type of gynecologic cancer in this study was ovarian cancer, most had cancer metastases or recurrence (71.6%) and 43.2% had received the first chemotherapy. The correlation results show that the higher a person's quality of life, the higher the SOC, positive reframing, active coping, and planning scores, while the lower the depression score. SOC is positively correlated with positive reframing and planning, and negatively correlated with depression. Depression is negatively correlated with positive reframing, active coping, and planning.  
Mediation analysis results show that SOC is related sequentially with the first positive reframing and planning as a coping strategy, the second with depression. SOC is directly or indirectly related to quality of life.  
Conclusion: Helping patients with gynecologic cancer undergoing chemotherapy to strengthen SOC can be done by providing patients with efficient coping strategies so as to reduce depression and improve their quality of life. | Science Direct |
|---|---|---|---|---|---|
| 10 | Factors associated with poor quality of life among cervical cancer survivors: implications for clinical care and clinical trials | (Osann et al., 2014) | Design: Cross sectional  
Samples: 202 cervical cancer patients.  
Analysis: t-tests and analysis of variance, Multivariable linear models (SYSTAT version 13.0), Stepwise linear models | There is a relationship between quality of life and PROMIS scores. Patients who received radiotherapy with or without chemotherapy had a lower quality of life, higher stress, depression, and anxiety. Maladaptive coping and gynecological problems were also more common in patients who received radiotherapy compared to those who only received surgery.  
Patients who had comorbidities before being diagnosed with cervical cancer had a lower quality of life, higher stress, depression, and anxiety, and received less social support. The presence of comorbidities is not related to gynecological or coping problems.  
Based on multivariable analysis, quality of life was determined by depression, somatization, gynecological problems, sleep disturbances, comorbidities before cancer diagnosis, level of adaptive coping, social support, and education. Among the factors that affect the quality of life, gynecological problems, social support, depression, somatization (BSI) is the most powerful factor. | Science Direct |
| 11 | Reducing psychological distress in patients undergoing chemotherapy | Design: Quasi pretest-posttest quasi-experiment with comparison group.  
Samples: 100 patients in a cancer hospital in Jakarta, Indonesia. Fifty patients in the intervention group were given a psychoeducational video with positive reassessment, education and relaxation content, while receiving chemotherapy.  
Instrument: Distress Thermometer | This study examines the relationship between psychoeducational interventions and the level of psychological distress of cervical cancer patients undergoing chemotherapy. Psychological distress is a common problem among cancer patients, but it is largely underreported and untreated. Patients who received psycho-educational interventions had significantly lower levels of distress compared to those in the control group. Psycho-educational therapy is a treatment modality that integrates psychotherapeutic and educational interventions. A self-administered stress management package consisting of information and instructions for dealing with chemotherapy, relaxation techniques and also a self-addressing statement shown in the video significantly improved the psychological status and quality of life of cancer patients undergoing chemotherapy. Cost-effective psycho-educational interventions to reduce the psychological distress experienced by cancer patients are important to consider an easy-to-understand and accessible intervention format | Google Scholar |
| 12 | Resilience, Positive Coping, and Quality of Life Among Women Newly Diagnosed with Gynecological Cancers 2016 | Design: Cross-sectional  
Samples: 281 women newly diagnosed with primary gynecologic cancer (ovarian, endometrial, cervical, vulvar and fallopian tubes).  
Instrument: Block and Block's scale, Positive emotion expression subscale of Emotional Expressiveness Questionnaire, 4-item positive reappraisal subscale of the COPE, The Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale (FACIT-Sp) Peace and Meaning subscale, The Functional Assessment of Cancer Therapy – General (FACT-G), and functional status subscale of the Cancer Rehabilitation Evaluation System (CARES), Medical chart, and demographic data questionnaire  
Analysis: T-tests and one-way analysis of variance (ANOVA) | More than half of the respondents are women with ovarian cancer and are in stage III or IV. More than eighty-five percent of respondents received chemotherapy. The average age of the respondents is 55 years. Resilience in gynecological cancer patients has a relatively high mean value. This study shows that the better the patient's resilience, the better the quality of life. The presence of symptoms of the disease, the length of time since the diagnosis was made, and the presence of impaired function are associated with low resilience. Age, income, education level, marital status, stage of cancer, and medical intervention were not related to resilience, but respondents who were older or had minimal functional impairment had a better quality of life. The relationship between resilience and quality of life is mediated by coping, the main strategy is the expression of positive emotions. The ability to feel at peace is the most powerful mediator to form resilience which will then improve the quality of life. Positive reappraisal is an indirect mediator of | Google Scholar |
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>13</strong></td>
<td>Family Support for Quality of Life for Cervical Cancer Patients</td>
<td>(Oktaviani &amp; Purwaningsih, 2020)</td>
<td>The results showed that respondents who received less family support, most of their quality of life was lacking, namely 8 respondents (47.1%). Respondents whose family support is sufficient, most of them have a poor quality of life, as many as 18 respondents (58.1%). While respondents who received good family support, most of them had a good quality of life as many as 22 respondents (55.0%). The results of the Chi Square test obtained p-value 0.000 &lt; (0.05), so it can be concluded that there is a significant relationship between family support and the quality of life of cervical cancer patients. The better the family support, the better the quality of life for cervical cancer patients</td>
</tr>
</tbody>
</table>

**(Design):** Correlational descriptive cross sectional approach  
**(Samples):** 88 respondents.  
**(Instrument):** EORTC QLQ C30 Quality of Life Questionnaire,  
**(Analysis):** Chi Square Test |

| **14** | The effect of informational-emotional support program on illness perceptions and emotional coping of cancer patients undergoing chemotherapy 2020 | (Pourfallahi et al., 2020) | This study initially had 90 participants, but 10 participants dropped out because they did not successfully complete the program. The majority of respondents are women and have stage III cancer. The most cancer suffered by the participants was breast cancer. Illness perception changed in the intervention group in the post-test measurement, but not in the control group. Changes in emotional coping did not occur in both groups. This study shows that the provision of nurse-led informational-emotional support programs causes changes in illness perception, but does not change emotional coping. |

**(Design):** Quasi-experimental  
**(Sample):** 80 cancer patients were obtained from the convenient sampling method, divided into treatment and control groups. The control group received routine care.  
**(Instruments):** Brief Cope Scale, Illness Perception Questionnaire-Revised (IPQ-R), Coping Through Emotional Approach Scale.  
**(Analysis):** Multivariate analysis of covariance (MANCOVA) models, t-test, paired t-test, and chi-square |

| **15** | It's never too late - Balance and endurance training improves functional performance, quality of life, and alleviates neuropathic symptoms in cancer survivors suffering from chemotherapy-induced peripheral neuropathy: Results | (Kneis et al., 2019) | The relationship between resilience and quality of life. Resilient patients may report a higher quality of life during a gynecologic cancer diagnosis because they express more positive emotions, positively reframe experiences, and foster a sense of peace and meaning in life. |

**(Design):** Randomized control trial.  
**(Samples):** 41 cancer patients including gynecological cancer who complained of chemotherapy-induced peripher neuropathy (CIPN).  
**(Instruments):** Force plate Leonardo Mechanograph® GRFP, Novotec MedicalGmbH, Pforzheim, Germany, self-reported CIPN symptoms (EORTC QLQ-CIPN20).  
**Endurance training menurunkan CIPN symptoms di kedua group, sedangkan balance training meningkatkan patients’ functional status. 37 patients memiliki training compliance ≥70%; kelompok kontrol menurunkan pola ayunan selama latihan semi-tandem stance (−76 mm, 95% CI -141→-17; CG: -6 mm, 95% CI -52→50), meningkatkan durasi standing on one leg on instable surface (11 s, 95% CI 18→17;CG: 0s, 95% CI 0→5) dan melaporkan keluhan motorik (−8 points, 95% CI -18→0; CG: -2 points 95% CI -6→2) kedua group melaporkan penurunan keluhan secara umum- (IG: -10 points, 95% CI -17→4; CG: - Science Direct
<table>
<thead>
<tr>
<th>Number</th>
<th>Study Title</th>
<th>Design</th>
<th>Details</th>
</tr>
</thead>
</table>
| 16     | Optimism and social support as contributing factors to spirituality in Cancer patients (Ciria-Suarez et al., 2021) | Cross Sectional, multi-center. | Design: Cross Sectional, multi-center.  
Samples: 912 cancer patients who received curative surgery for stage I-III cancer and received adjuvant chemotherapy.  
Instrument: Kuesioner Functional Assessment of Chronic Illness-Spiritual Well-being Scale (FACIT-SP), Life Orientation Test-Revised (LOT-R) dan Multidimensional Scale of Perceived Social Support (MSPSS).  
Analysis: Regression test  
There are differences in the level of spirituality (meaning/peace and belief) in respondents aged 65 with >65 years, gender, marital status, occupation, and cancer management. Cancer patients who are married or have a partner have a greater sense of peace than those who are not married or do not have a partner. Female gender, age >65 years, not working, and receiving chemotherapy and radiotherapy had a higher confidence score than male gender, 65 years old, working, and only receiving chemotherapy. Meaning/peace and confidence are positively correlated with optimism and social support. Optimism and social support correlate with spiritual coping in clients receiving oncology management. |
Samples: 182 patients both male and female.  
Instrument: Kuesioner the Supportive Care Needs Survey Short Form-34, Mini-Mental Adjustment to Cancer Scale and the Hospital Anxiety Depression Scale.  
Analysis: Chi-square dan Multimodal binary logistic regression α=0.05  
Most of the respondents are aged 18-40 years, are married, live in urban areas, have a small family system, and are in the early stages of cancer and receiving chemotherapy. The method of care received was significantly related to gender, employment status, family system, and level of education. The need for information is the most dominant, followed by psychological needs. Most of the respondents have maladaptive coping. The coping domain is not directly related to psychological distress, but a significant difference is obtained from the comparison between respondents who have adaptive and maladaptive coping. Neglect of fulfilling the psychological needs of patients with cancer indicates the need for appropriate psychological interventions so as to improve the overall process of illness and recovery. |
| 18     | Evaluation of the effect of caring program based on Roy adaptation (Hajalimohammadi et al., 2020) | Clinical Trial pre-post test design with control group. | Design: Clinical Trial pre-post test design with control group.  
Samples: 130 elderly oncology cancer patients, both male and female.  
In this study, no significant difference was observed in the number of chemotherapy courses in the groups before intervention according to chi-square test (P = 0.667). |
<p>| Model in physiology and self-concept dimensions on fatigue of elderly cancer patients undergoing chemotherapy | Female, were divided into treatment and control groups. Instrument: Kuesioner Multidimensional Fatigue Inventory (MFI-20), Interview and observation. Analysis: Chi-square, paired t-test, Mann-Whitney test, Wilcoxon test, analysis of variance and Kruskal-Wallis Test. Mean score of fatigue according to the paired T-Test was 60.63 ± 5.92 and 58.84 ± 6.28, respectively, in intervention and control groups before the intervention and it was 50.43 ± 7.42 and 58.46 ± 5.68, respectively, in intervention and control groups after the intervention (p-value &lt;0.001). |
|---|---|---|
| Evaluating the Effect of a Video Education Curriculum for First Time Breast Cancer Patients: a Prospective RCT Feasibility Study (Sulakvelidze et al., 2019) | Design: Randomized Controlled Trial. Sample: 28 cancer patients were divided into treatment and control groups. Instrument: Kuesioner Analysis: Mann Whitney Test. This pilot study revealed that patients who were given video education experienced greater improvement in some of these areas, with the largest increases seen in patients who received personalized videos that were specific to their tumor (based on tumor receptor status), but statistical tests showed no difference with the control group. The results of this study indicate the potential of providing personalized educational videos to breast cancer patients at the beginning of diagnosis, especially to provide complex explanations of tumor types. |
| The effect of the preoperative psychoeducation program for Taiwanese breast cancer patients: A three-month follow-up study (Hung et al., 2022) | Design: Quasy experiment. Sample: 137 adult women diagnosed with breast cancer. Instrument: Distress Thermometer (DT), Skala The Preoperational CancerWorry Scale (PSCWS), The Cancer Behavior Inventory-BriefVersion (CBI-B) Analysis: ANOVA. The results of this study indicate that psychoeducational programs help patients relieve distress, calm worries and increase self-efficacy before surgery. |
| Baseline audiological profiling of South African females with cervical cancer: an important attribute for assessing cisplatin-associated ototoxicity (Paken et al., 2021) | Design: Descriptive study. Sample: women diagnosed with cervical cancer, totaling 82 participants. Instrument: Appropriate management, audiological assessments, popular antineoplastic agent. Analysis: All statistical analyses were conducted using SAS 9.4 (Johannesburg, SA). Most of the respondents were 50 years old, ethnically African, were at a stage above or equal to IIB, and were HIV positive. The majority complained of decreased hearing, especially in the left ear and experienced tinnitus. Most chemotherapy is ototoxic. Appropriate management of these patients is very important in order to reduce the side effects of hearing loss and improve the individual's quality of life, as well as to facilitate the right decision making regarding the initiation of cisplatin chemotherapy. |
| Impact of Different Sociodemographic Factors on Mental Health Status of Female Cancer Patients Receiving Chemotherapy for Recurrent Disease Mukherjee, Mazumder, &amp; Ghoshal | Cross sectional. Sample 40 participants with breast and ovarian cancer who underwent a second or more chemotherapy. Mean and standard deviation and Levene's F values were calculated. If Levene's F value was significant, the ANOVA was conducted to determine the differences in the mean scores. Among all the variables, education, residential status, and income affect significantly on anxiety, depression, and QOL. |</p>
<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
<th>Authors</th>
<th>Design</th>
<th>Sample</th>
<th>Instrument</th>
<th>Analysis</th>
<th>Abstract</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Body Changes After Cancer: Female Cancer Patients’ Perceived Social Support and Their Perspective on Care</td>
<td>(Melissant et al., 2019)</td>
<td>Descriptive study</td>
<td>235 women with cancer.</td>
<td>Social support questionnaire, Perspective on care questionnaire</td>
<td>Logistic regression</td>
<td>Most agree that the physical changes that occur are as invisible as possible from the outside. One in 6 respondents stated that they avoided contact with other people because of the changes in their bodies. Most of the respondents felt that they received sufficient support from health workers, family and friends. In addition, 30% of respondents feel support from the media regarding changes in body shape due to cancer. Support from the media is influenced by age, education level, relationship status, and the importance of appearance. Respondents received support primarily for exercise, nutrition, psychological support, and skin care. Few of the respondents received support regarding appearance such as make up, nail polish, color and style of clothes. Support from health workers is influenced by the level of education and the importance of the respondent’s appearance. Participants with higher levels of education and less concern for appearance received less support from health workers. Support from family and friends is influenced by relationship status and treatment modality of cancer obtained. Respondents who did not have a partner and only received surgical therapy, received less support from family and friends.</td>
</tr>
<tr>
<td>23</td>
<td>Prevalence of Lifestyle Behaviors and Associations with Health-Related Quality of Life Among Older Female Cancer Survivors</td>
<td>(Krok-Schoen et al., 2020)</td>
<td>Descriptive analysis, correlation, and stepwise linear regression.</td>
<td>171 old women with cancer.</td>
<td>RAND-36: the 36-item health survey, Body Mass Index (BMI), The Diet History Questionnaire II (DHQ II), Physical activity questions, 8-item Modified Medical Outcomes Study Social Support Survey (mMOS-SS).</td>
<td>T tests and ANCOVAs with Bonferroni post hoc analyses, Pearson’s and Spearman’s</td>
<td>The results show that elderly cancer patients have poor diet quality, high overweight (obesity), low levels of physical activity, it can affect the patient’s HRQOL. So, it is necessary to develop health that is tailored to the patient’s age to improve their lifestyle.</td>
</tr>
<tr>
<td></td>
<td>Relationship Between Spirituality, Meaning in Life, Psychological Distress, Wish for Hastened Death, and Their Influence on Quality of Life in Palliative Care Patients</td>
<td>(Bernard et al., 2017)</td>
<td>Design: Exploratory, cross-sectional study. Using German, French and Italian. Samples: purposive sampling with a sample size of 206 participants, male and female. Analysis: Multivariate regression Model</td>
<td>The results showed that good spiritual well-being will reduce Wish for Hastened Death (the desire to end life) and psychological distress including components of anxiety and depression. The better a person's meaning in life (MIL) score, the lower their psychological distress score. This study also revealed that spiritual well-being and depression were the main predictors of quality of life.</td>
<td>Science Direct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pilot Pragmatic Randomized Trial Of mHealth Mindfulness-Based Intervention for Advanced Cancer Patients And Their Caregiver</td>
<td>(Kubo et al., 2020)</td>
<td>Design: Quality control Sample: 206 patients and 39 caregivers Instrument: phone, website applications on mobile phones Analysis: DatStat software, SAS version 9.4</td>
<td>The results of the study show that almost all patients prefer mindfulness applications over webinar programs. 21 (68%) and 7 (47%) caregivers practice mindfulness programs. The intervention participants were very satisfied with the mindfulness program. There was an increase in anxiety, quality of life, and concentration in patients with the intervention compared to the control group.</td>
<td>Google Scholar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Short- and Long-Term Impact of Adapted Physical Activity and Diet Counseling During Adjuvant Breast Cancer Therapy: the “APAD1” Randomized Controlled Trial</td>
<td>(Carayol et al., 2019)</td>
<td>Design: Randomized controlled trial. Sample: women diagnosed with early breast cancer totaled 143 participants. Instrument: Completed baseline assessment, The APAD experimental arm, The UC control arm Analysis: Stata software version 12 (StatCorp, LLC, College Station, TX, USA)</td>
<td>The results of the study show that various highly beneficial impacts of APAD interventions. This was seen in all patient-reported outcomes (PROs) namely fatigue, quality of life, anxiety, and depression (measurements at weeks 18 and 26). Significant impact on fatigue and quality of life persisted for up to 12 months afterward. Significant reductions in BMI, fat mass, and improvements in muscle endurance and cognitive flexibility were seen at 26 weeks, but did not persist thereafter. The combination of diet and exercise intervention during chemotherapy and radiotherapy in patients with early-stage breast cancer resulted in positive changes in various psychological, physiological effects (BMI, fat mass, and muscle endurance), and behavior (increased physical activity, adherence). Beneficial impact persisted on complaints of fatigue and quality of life in the long term, ie 1 year after intervention</td>
<td>Science Direct</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In conducting a journal review, it can be done by using literature review techniques, including determining compare, contrast, criticize, synthesize, summarize.

**Similarity:** Of the thirty journals that have been analyzed, there are some similarities regarding Android-based Education on Self-Care Ability in Improving the Quality of Life of Gynecological Cancer Patients With Chemotherapy, namely similarities seen from the data collection methods used in the study. According to research conducted by Cheville, et al, Carayol et al, Kubo et al, Galiano-Castillo et al, Kinjo et al, Carayol et al, Ozeri et al, Sulakvelidze et al and Kneis et al, the methods used are data collection methods such as conducting interviews, observations, questionnaires and experiments. This is in line with research conducted by Nguyen et al, Bouya et al, Bernard et al, Mulhaeriah et al, Krok-Schoen et al, Melissant et al, Rubinsak et al, Mukherjee et al, Paken et al, Hung et al, Huang et al, Kim et al, Osann et al, Milanti et al, Manne et al, Ladesvita et al, Oktaviani & Purwaningsih, Hajalimohammadi et al, Pourfallahi et al, Ciria-Suarez et al, Shahid et al. The method of data collection also uses the method of observation, interviews, questionnaires and experiments.

**Inequality:** Of the thirty journals that have been analyzed, there are differences between one and the other, because they look at the results of research on the journals used. According to research conducted by Kubo et al 2019, Nguyen et al, Kinjo et al, Krok-Schoen et al, Huang et al, Osann et al, Ladesvita et al, Pourfallahi et al, Kneis et al, Shahid et al. that the causes of the problems that occur in this study are (1). Lack of renewal of educational methods that are easier and more convenient to access and efficient, (2). The decrease in the patient's self-care ability, (3). Lack of information delivery to patients and families about daily self-care due to illness and the therapy they are undergoing. This contradicts the research conducted by Galiano-Castillo et al, Bouya et al, Mulhaeriah et al, Mukherjee.

| Application of the Oral Assessment Guide (OAG) in Cancer Patients With Chemotherapy (Ladesvita et al., 2020) | Design: Comparative analysis compared conventional assessment with OAG assessment as Evidence Based Nursing (EBN). Results: Based on the results of conventional studies, from 71 chemotherapy patients, 14 people experienced mucositis. The OAG study found 32 people had mucositis. The results of the calculation of the sensitivity of the instrument, the sensitivity value of the OAG assessment technique shows the figure of 45.07%, while the sensitivity of the conventional assessment is 19.7%. Conclusion: The sensitivity of the OAG mucositis assessment technique in pre-chemotherapeutic patients is higher than the assessment technique used in the current ward. The OAG instrument is suitable for use in the treatment room because most of the methods are observation and the assessment time is not more than 1 minute. | Google Scholar |
| Adjuvant Chemotherapy for Low Clinical Risk Breast Cancer Defined by Modified Version of Adjuvant Online: A Propensity Score Matched SEER Analysis (Huang et al., 2021) | Design: Retrospective Study Sample: 48,857 breast cancer patients aged Patient data were retrieved from the SEER 18 database using SEER Stat, version 8.3.5. Instrument: SEER 18 Database Analysis: Pearson's 2 test, Kaplan-Meier analysis and Multivariable Cox regression This study shows that chemotherapy does not have a beneficial effect on breast cancer patients with HR-positive, HER2-negative, and axillary node-negative breast cancer who are categorized as low risk patients by the Adjuvant application! On line. This is because chemotherapy has a toxic effect on patients with low risk criteria. | Google Scholar |

### IV. DISCUSSION

In conducting a journal review, it can be done by using literature review techniques, including determining compare, contrast, criticize, synthesize, summarize.
et al, Cheville et al, Carayol et al, Kubo et al 2020, Bouya et al, Bernard et al, Mulhaeriah et al, Melissant et al, Rubinsak et al, Paken et al, Hung et al, Ozeriet al, Sulakvelidze et al, Kim et al, Milanti et al, Manne et al, Oktaviani & Purwaningsih, Hajalimohammadi et al, that the causes of problems that occur in this study shows that there is an influence on, (1). The quality of information on the ability of self-care in improving the quality of life, (2). The quality of service in providing the necessary information or training about the application so that positive health behavior changes occur. (3). System quality has a significant effect on user satisfaction.

View: From the analysis of several journals, it was found that

Utilization of Android-based applications in providing health education

The mhealth application is used by nurses in Australia as a medium to improve oral chemotherapy compliance. Interventions through mHealth are reminders to take regular daily medications, assessment of drug side effects and evidence-based self-care advice delivered in real time and serving questions from patients. Interview results from users said mHealth helped in establishing medication routines, increasing awareness of self-care and making decisions based on advice from nurses through mHealth. This application is proven to improve therapy adherence and patient side effect management capabilities during home care (Pereira-Salgado et al., 2017; Faidah and Wildani, 2021).

The Oncology Family App is an application developed in Australia to support families who care for cancer patients with various features such as patient information and disease management plans, blood test results, 24-hour service telephone numbers and google maps to hospitals. As many as 68% of parents who use the application express enthusiasm and satisfaction with the application in providing information.

Utilization of Android-based applications in reporting and symptoms

The TOGETHER Care application developed by (Oakley-Girvan et al 2021; Faidah and Wildani 2021) is used for symptom identification in cancer survivors and provides reminder features, medication modules, diet guidance, and self-care for cancer sufferers who are treated at home. This application makes it easier for caregivers to record data regarding symptoms or complaints of cancer sufferers and reporting to health workers. This research supports the results of the literature study presented by the researcher that the Android-based application, one of which is mHealth, is useful in reporting and symptom management in oncology services.

Penelitian (Kunin 2016; (Faidah and Wildani, 2021)) using a randomized controlled pilot trial design proves that web-based applications can increase knowledge about cancer and its therapy in adolescent and young adult patients. Android-based applications, one of which is MHealth, has proven to be effective in providing health education, especially for the adolescent age group, most of whom use gadgets and are able to understand instructions from the application.

Utilization of Android-based applications in providing psychological social support

Physical and social psychological empowerment of cancer patients is a core principle of patient-centred care. Technological advances in the form of mHealth and therapeutic videos are able to facilitate empowerment interventions by developing motivation and enthusiasm so as to reduce stress and fear, improve coping skills and self-management of symptoms related to illness and therapy. One of the mHealth applications is Re Mission 2 which promotes patient empowerment, increased self-efficacy, encourages positive emotions and motivation for children and adolescents and cancer parents to comply with treatment therapy. (Govender et al., 2015; Faidah and Wildani, 2021).

MHealth is very likely to be applied in Indonesia, especially in supporting oncology services. Almost all children, teenagers and parents have smartphones so that Android-based applications are easily accessible anywhere and anytime. For nurses, the application can be used as a method of assessing cancer patients, providing nursing interventions such as monitoring chemotherapy side effects, symptom management, health education, and providing psychological social support. It is hoped that through this literature review, it can generate motivation and the role of nurses in technology development, especially Android-based applications as well as in the application of mHealth applications that are already available as an effort to improve the quality of oncology services in the cancer treatment process. (Mehdizadeh et al., 2019; Faidah and Wildani, 2021)

Several studies analyzed prove that Android-based applications with a variety of features can increase knowledge and skills, facilitate symptom reporting, provide psychological social support through interaction with peer groups, reduce stress and depression. The application makes it easy to provide supportive care and palliative care for cancer patients. Android-based applications are a solution to support services in the oncology area, especially gynecological cancer because it has been proven effective and provides benefits for patients with cancer and gynecological cancer.

Comparison: The results of research conducted by Kubo et al 2019, Nguyen et al, Kinjo et al, Krok-Schoen et al, Huang et al, Osann et al, Ladesvita et al, Pourfallahi et al, Kneis et al, Shahid et al. that the causes of problems in educational applications from three aspects, namely, the Application System. Patients and medical personnel (human resources), Meanwhile, according to Galiano-Castillo et al, Bouya et al, Mulhaeriah et al, Mukherjee et al, Cheville et al, Carayol et al, Kubo et al 2020, Bouya et al, Bernard et al, Mulhaeriah et al, Melissant et al, Rubinsak et al, Paken et al, Hung et al, Ozeriet al, Sulakvelidze et al, Kim et al, Milanti et al, Manne et al, Oktaviani & Purwaningsih, Hajalimohammadi et al, that the causes of problems in educational applications can be seen from two aspects, namely in terms of human resources, aspects of the implementation process. From these two opinions it is said that the causes of problems in Android-based educational applications on self-care abilities include: aspects of the application system, patients, human resources and aspects of the implementation process so that it will affect the self-care of gynecological cancer patients in improving their quality of life.

Summary: The development of information and communication technology and its supporting facilities has now been widely felt by the wider community to reach the health sector. Android-based applications have been developed for certain purposes that can improve the quality of health. Patients undergoing chemotherapy therapy should be monitored remotely through an android-based
application where patients can report clinical parameters, quality of life, and symptoms experienced to health care providers. Education that is carried out correctly and clearly can encourage patients to comply with the instructions given through the application. The maximum benefit of the application for users needs support from service providers in providing the necessary information or training about the application so that positive health behavior changes occur such as conducting early examinations. Gynecological cancer patients who receive chemotherapy have a tendency to feel anxious and a decrease in the patient's self-care ability. Limitations of self-care occur due to the lack of information delivery to patients and families about daily self-care due to illness and the therapy they are undergoing. This is due to lack of knowledge. The presence of an android-based application that provides simulations for cancer patients to be able to see or experience virtually how to properly self-care.

Things that need attention from a health application include application design, content, interface and functionality. The use of textual related images can reduce reading difficulties and facilitate communication. The need to create visual representations and illustrate applications, figures, photos and videos obtained in the real care environment of patients undergoing chemotherapy is included to complement the textual content and facilitate understanding for users, especially for those with low levels of education. (Cruz et al., 2021; Pramiasti Dodik Hana., 2019). A more effective mobile health app has at least seven essential elements of patient empowerment including education, self-monitoring, feedback, customized information, self-management training, personalized exercise program, and communication with other providers or survivors. (Starmer et al., 2018; Pramiasti Dodik Hana., 2019). Educational content can be woven into the app in the form of links to quality information, information about the importance of exercise during therapy, and strategies for managing medication side effects. Education can be embedded in the form of videos that are given regularly about visualizing the patient's treatment expectations for quality of life or hope for healing.

Health education or health promotion is an asset in health care and can provide individuals or groups with relevant information to prevent disease or improve its consequences. Health literacy is an individual's ability to meet the complex health demands of modern society. Self-efficacy can also be seen as a belief in a person's ability to perform well in a life domain that may be associated with an increase in health behaviors or a decrease in disease burden. Health education using Android-based applications is an innovative model used to improve health literacy and improve health-related behaviors, including self-efficacy and positive behavior change. Cancer patients can benefit from health applications to improve health literacy, promote healthy lifestyle behavior changes, such as self-efficacy and self-management, reduce the need for nursing care, and improve quality of life after surgery or therapy. (Lee et al., 2021; Pramiasti Dodik Hana., 2019).

V. CONCLUSION

From the research results of thirty journals that have been analyzed, the conclusion from this literature review study is that the application of Android-based application technology media has an effect on increasing knowledge about health in self-care. On average, respondents stated that they enjoy getting information through technology because it is more motivating and makes it easier to get information. Analysis of the results of several studies found that physical, psychological and behavioral therapy can be recommended to improve the quality of life in gynecologic cancer patients.

Health education and interventions through android-based applications can have a positive impact on improving the quality of health, both direct impacts on physical health and indirect psychological and social impacts as well as increasing health literacy. Interventions using android-based applications are relatively cheaper in terms of cost. Applications can also protect personal privacy, realize individual interventions, provide better and more accurate ways of conducting interventions and implementation.

REFERENCES


**AUTHORS**

**First Author** – Nursalam Nursalam, Faculty of Nursing Universitas Airlangga Surabaya Indonesia and nursalam@fkp.unair.ac.id,  
**Second Author** – Awatiful Azza, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, Universitas Muhammadiyah Jember and awatiful.azza-2020@fkp.unair.ac.id,  
**Third Author** – Chanif, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, Universitas Muhammadiyah Semarang, and chanif-2020@fkp.unair.ac.id,  
**Fourth Author** – Erna Dwi Wahyu, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, Faculty of Nursing Universitas Airlangga Surabaya Indonesia and erna-d-w@fkp.unair.ac.id,  
**Five Author** – Machmudah, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, Universitas Muhammadiyah Semarang, and machmudah-2020@fkp.unair.ac.id,  
**Six Author** – Nurus Safaah, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, Institut Ilmu Kesehatan Nahdlatul Ulama Tuban and nurus.safaah-2020@fkp.unair.ac.id,  
**Seven Author** – Sri Utami, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, Universitas Riau Pekanbaru and sri.utami-2020@fkp.unair.ac.id,  
**Eight Author** – Tiyas Kusumaningrum, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, Faculty of Nursing Universitas Airlangga Surabaya Indonesia and tiyas-k@fkp.unair.ac.id,  
**Nine Author** – Wiwit Dwi Nurbadriyah, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, STIKes Kepanjen Malang Indonesia and wiwit.dwi.nurbadriyah-2020@fkp.unair.ac.id,  

**Correspondence Author** – Wiwit Dwi Nurbadriyah, wiwit.dwi.nurbadriyah-2020@fkp.unair.ac.id, Doctoral Student Faculty of Nursing Universitas Airlangga Surabaya Indonesia, STIKes Kepanjen Malang Indonesia, +6281331118957