CORRELATION ANALYSIS OF SOCIODEMOGRAPHIC FACTORS WITH MEDIA PREFERENCE AND ONLINE NUTRITION EDUCATION TOPICS FOR CANCER PATIENTS IN INDONESIA

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Abstract

Background: High incidence of malnutrition in cancer patients made nutrition education have an important role. In the end of 2019, Covid–19 caused access restriction on almost all of healthcare in Indonesia. It has changed nutrition education method from offline into online. This alteration made necessary to know the types of media and nutrition education topics who interested by cancer patients, where influenced by sociodemographic factors. **Method:** This research was cross – sectional online survey based conducted among cancer patients and survivors in Indonesia. The online survey was spread through social media and several cancer foundations in Indonesia from March 2021 to September 2022. The samples used convenience sampling technique with total samples were 53 participants. The data were analysed using chi square test. **Results:** Respondents were most commonly women aged range 41 – 60 years old, taken higher level education, had high income, and employed. Based on the results, respondents were more interested in topic about additional nutritional therapy needed by patients or cancer survivors (19,2%) but not statistically significant (p >0,05). Based on media preferences, there was a significant relationship between age and video, group chat, YouTube, and zoom meeting (p<0,05) also there was significant relationship between employment and group chat and gender with google meet (p<0,05). **Conclusions:** There is a correlation between sociodemographic factors and media preferences, but no correlation between sociodemographic factors and online nutrition education topics in cancer patients and survivors in Indonesia.

Keywords: cancer, media preferences, nutrition education topics

Introduction

Indonesian cancer prevalence has risen from 1,4‰ to 1,8‰ since 2013 to 2018. According to World Health Organization (WHO), mortality rate of cancer cases in Indonesia is around 76%. Nearly 10 – 20% of cancer mortality are caused by malnutrition. Malnutrition in cancer patients is the result of hypermetabolism, side effects from therapy, low therapy efficacy, longer hospital admissions, higher incidence of complications, and appetite loss that leading to decrease quality of life. Giving nutrition education is one of strategies to handle malnutrition cancer patients. Based on previous research, giving nutrition education can increase nutrition status, nutrition intake, quality of life, and diet quality of malnutrition or at risk of malnutrition cancer patients.

In the end of 2019, COVID – 19 made some access restriction at some health facilities especially for comorbidities. This situation has caused alteration of offline health service to become online method or well known as telehealth. Types of online media and nutrition topics need to be considered in providing nutrition education through telehealth. According to previous research, sociodemographic factors influenced patients to choose nutrition topics and online platform, but these factors aren't much researched. This research will be conducted to understand cancer patient's preferences of online media and nutrition topics based on sociodemographic factors.

Methods

This research was cross – sectional online survey based and carried between March 2021 and September 2022. Inclusion criteria were cancer patients or survivors, domiciled in Indonesia, and has internet access. Patients who under 18 years old were excluded. Participants were voluntarily recruited by accepting the informed consent and answered online questionnaire that spread through online social media and several cancer foundations in Indonesia. The questionnaire administered has been tested for validity also reliability and contained three sections on demographics, nutrition education topics, and online media preferences.

Chi square tests and regression tests were performed using SPSS v 26. A 95% confidence level was used throughout analysis. The data will be statistically significant if the p value <0,05.

Results and Discussions

During September 2021 – March 2022, the total participants approached for study were 74 participants but only 53 participants included in this analysis.

Table 1. Sociodemographic Characteristics

Demographic Characteristics		N (Total = 53)	Percentage (%)
Age (years)	18 – 40	10	18,9
	41 – 60	36	67,9
	>60	7	13,2
Gender	Male	3	5,7
	Female	50	94,3
Education level	Compulsory education	12	22,6
	>High school education	41	77,4
Income level	Low income	13	24,5
	High income	40	75,5
Occupation	Employed	34	64,2
	Housewife	3	5,7
	Unemployed	16	30,2

Participants were most commonly women (94,3%), aged range of 41 – 60 years old (67,9%), took higher educational level (77,4%), had high income (75,5%), and are employed (64,2%) (Table 1).

Nutrition Education Topics Preference based on Sociodemographic Factors

Table 2. Frequency of Nutrition Education Topics

Nutrition Education Topics	N	Percentage (%)
Menu Recommendations and Recipes (Topic 1)	32	16,2
Cancer Nutrition Recommendations (Topic 2)	35	17,7
Cancer Diet and Comorbidities (Topic 3)	26	13,1
Exercise Recommendations (Topic 4)	35	17,7
Food Safety (Topic 5)	32	16,2
Cancer Nutrition Support (Topic 6)	38	19,2

Participants were asked which nutrition topics they need to obtain when giving nutrition education. The three most popular topics that has high interest among participants were cancer nutrition support (19,2%), nutrition recommendations after dan during cancer treatment (17,7%), and exercise recommendations (17,7%) (Table 2).
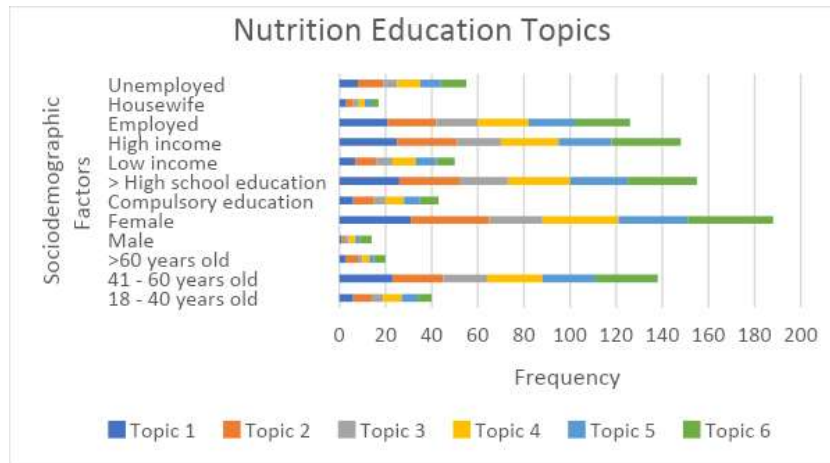
Fig 1. Frequency of Nutrition Education Topics

According to chi square analyses, there is no correlation between nutrition education topics and sociodemographic factors (p value >0,05). Based on sociodemographic factors, cancer nutrition support topic was chosen by women, aged 41 - > 60 years old, took higher education level, had high income, are employed and unemployed. Beside that, nutrition recommendations topic was chosen by aged 18 – 40 and >60 years old, took lower education level, and are unemployed. And participants who aged 18 – 40 years old and had low-income preferred exercise recommendations topic.

Aged 18 – 40 years old were interest in nutrition and exercise recommendations topics because from survey results, 92% of this age group search on the internet for both of topics. Then, aged 41- >60 years old were interest in cancer nutrition support due to their higher risk of malnutrition that are caused by physiological factors. Furthermore, side effects form cancer therapy may decrease their quality of life. Therefore, they require higher nutrition support. In addition, aged >60 years old also interest in cancer nutrition recommendations because they want to know what kind of nutrition can relieve symptoms and side effects of cancer therapy. On women participants, they chose cancer nutrition support since many women are using nutritional supplements, so they need more information about their supplement's consumption and its interaction with their therapy (Luo & Asher, 2018).

Level of education is often positively correlated with income level and employment. As higher education level, the more people will get jobs and high income (White et al., 2015). In this study, participants with compulsory education and unemployed interest in nutrition recommendation topic because of their low knowledge of health(Raghupathi & Raghupathi, 2020). In addition, based on previous study, there is high incidence of malnutrition and low nutrition intake of low education level participants (Johnston et al., 2021)(Moghadam et al.,

2021). Otherwise, high education and income level participants interest with nutrition support because they have higher awareness of healthy lifestyles about nutrition and able to get healthier foods than low education and income level (Cowan et al., 2018).

Online Media Preferences based on Sociodemographic Factors

To understand what kind of online media would be wanted in online nutrition education, participants were asked which online media they preferred.
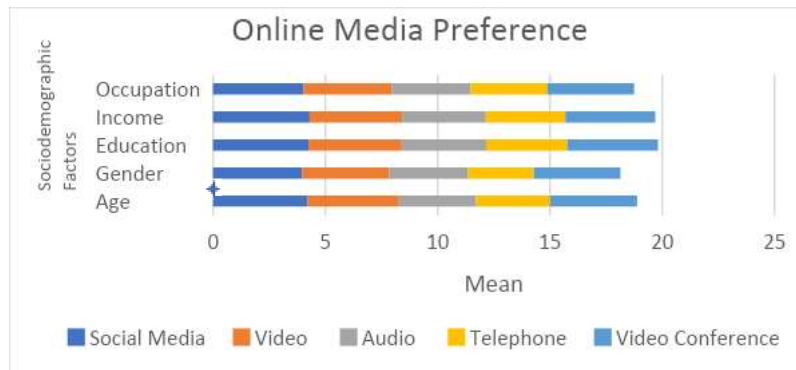

Fig. 2 Mean of Online Media Preference based on Sociodemographic Factors (* p value <0,05)

From this research, almost all participants interested in social media. Social media is one of media that commonly used by Indonesian and based on survey results, 95% of Indonesian using that media (Karuniadi & Widiastini, 2020). Social media can reach large of audiences and low cost make social media has big opportunity as a tool for giving education (Lyson et al., 2018). In the contrary, aged 18 – 40 years old has low interest in using social media to seek information due to many untrustworthy informations and resources. Therefore, this aged prefer to obtain information from the other online resources or ask health workers (Warner et al., 2022).

In this study, telephone was less desirable as a media for giving nutrition education. Loss of signal, limited visual information, and absence of non – verbal communication made participants have difficulty in communicating. According to previous experimental research, the participants preferred using video call than telephone (Hammersley et al., 2019).

Even though social media is most likely by almost all participants, but there is statistically significant between video and age. The other research showed that there was negative correlation between video and age. It means getting older make someone less interest in using video as education media (Huyse & Leybaert, 2014).

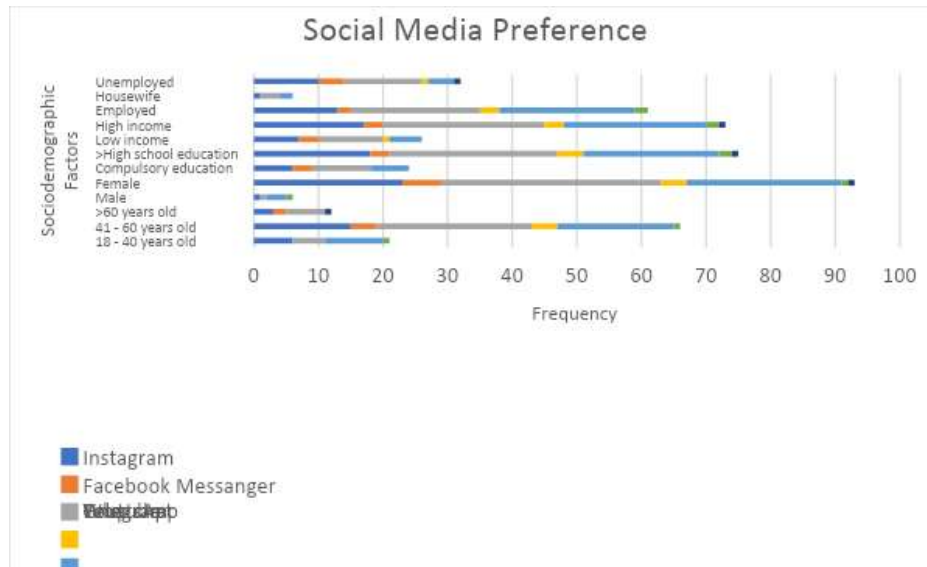**Social Media Preferences based on Sociodemographic Factors**

Fig. 3 Frequency of Social Media Preference

About two – thirds of the participants reported prefer using WhatsApp as social media application for giving nutrition education (Fig. 3). In according to Hootsuite (We Are Social) Indonesia Digital Report 2020, WhatsApp is the second social media platform that used by Indonesian (Harahap & Adeni, 2020). WhatsApp gives many advantage features such as text, video, and audio which education can be given easily.

Table 3. Chi Square Analysis of Social Media Preference based on Sociodemographic Factors

Sociodemographic Factors	Social Media (p value)						
	Instagram	Facebook Messanger	WhatsApp	Telegram	Group chat	Line	Youtube
Age	0,58	0,19	0,31	0,31	0,001*	0,49	0,035*
Gender	0,29	0,37	1,00	1,00	0,62	0,54	1,00
Education	0,97	0,12	0,73	0,56	1,00	1,00	1,00
Income	0,69	0,15	0,50	1,00	0,47	1,00	1,00
Occupation	0,25	0,11	0,23	0,83	0,045*	0,56	0,31

(* p value <0,05)

Table 4. Statistically Significant Regression Analysis of Social Media Preference based on Sociodemographic Factors

Sociodemographic Factors		Social Media (p value) Group chat
Age	41 – 60 years old	0,000
Occupation	Employed	0,020

Besides of frequency data, statistical analysis showed there is correlation between age especially aged 41 – 60 years old with group chat. According to previous experimental research, this aged group got many benefits from using group chat like sharing information and getting emotional support and experience from the others cancer patients or survivors (Pereira et al., 2020). In this research, there is also correlation between employed and group chat. Group chat is commonly used by employed participants to coordinate and communicate with other workers. The other benefit from this feature is they can communicate directly with dietitian during education sessions (Sari & Putri, 2019). The other statistically significant social media is age and Youtube. This application is used by 88% of Indonesian (Junawan & Laugu, 2020). Based on previous research, there is negative correlation between aged and watching health videos on Youtube Langford & Loeb, 2019.

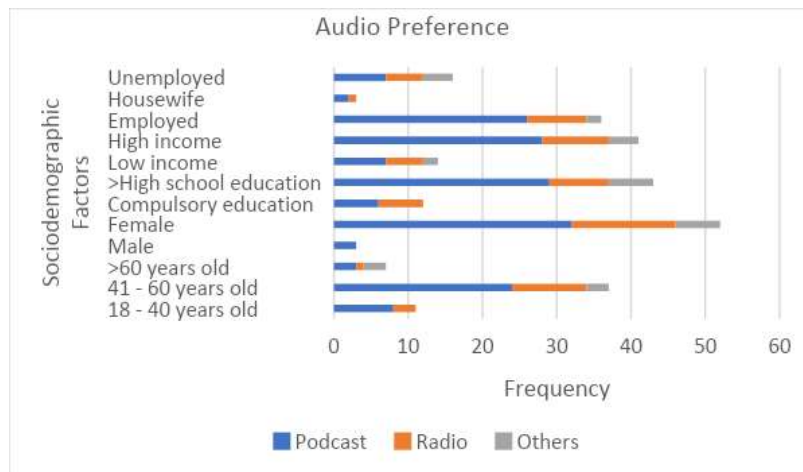**Audio Preferences based on Sociodemographic Factors**

Fig. 4 Frequency of Audio Preference

All of participants of this research preferred podcast as audio media for giving nutrition education. The benefits of listening podcast are more flexible and its variate in content (Meisyanti & Kencana, 2020). According to Cho et al., (2017), podcast has big opportunity as education media due to easy to produce, low cost, and high capability to spread.

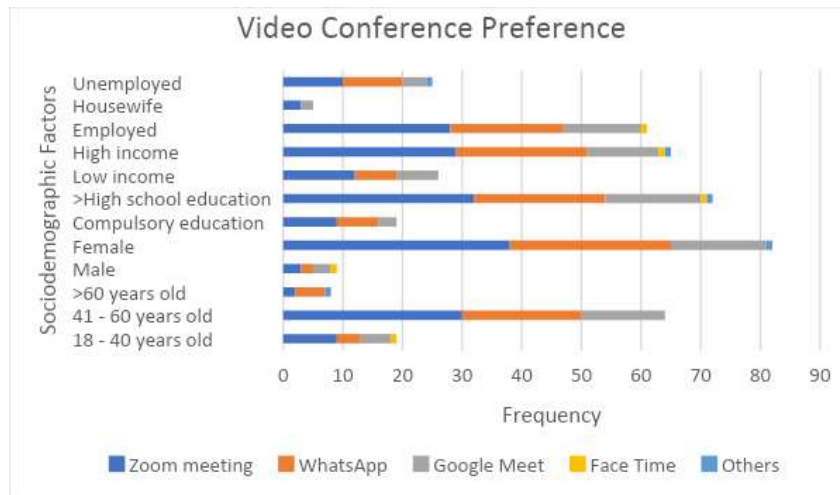**Video Conference based on Sociodemographic Factors**

Fig. 5 Frequency of Video Conference Preference

Based on frequency, zoom meeting was the video conference platform that interested by almost all the participants. Zoom meeting is most used by Indonesian cause its time efficient and low cost (Archibald et al., 2019). This platform also allows participants to communicate directly with dietitian during education session.

Table 4. Chi Square Analysis of Video Conference based on Sociodemographic Factors

Sociodemographic Factors	Video Conference (p value)				
	Zoom meeting	WhatsApp	Google Meet	Face Time	Lainnya
Age	0,004*	0,43	0,09	0,11	0,04*
Gender	1,00	1,00	0,04*	0,057	1,00
Education	1,00	1,00	0,50	1,00	1,00
Income	0,25	1,00	0,18	1,00	1,00
Occupation	0,185	0,133	0,343	0,752	0,308

(* p value <0,05)

Table 5. Statistically Significant Regression Analysis of Video Conference Preferences based on Sociodemographic Factors

Sociodemographic Factors		Video Conference (p value) Zoom Meeting
Age	18 – 40 years old	0,021
	41 – 60 years old	0,008

In this research, there are correlation between age especially aged 18 – 60 years old with zoom meeting and gender with google meet. Aged 18 – 60 years old is productive ages therefore they

usually use this platform to do online meeting and online learning (Haqien & Rahman, 2020; Karl et al., 2022). Based on previous study, gender influences google meet user where male is more likely using that application than women (Uaidullakyzy et al., 2022).

Conclusions and Recommendations

In this study, there is a correlation between sociodemographic factors and media preferences, but no correlation between sociodemographic factors and online nutrition education topics in cancer patients and survivors in Indonesia. From online media preferences, this study recommend zoom meeting, group chat, and YouTube as online media platform to be used when giving nutrition education for cancer patients or survivors. Then for nutrition education, nutrition support topic is recommended to be given.

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