Fear of cancer recurrence and social support among Indonesian gynecological cancer survivors

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SUMMARY

Background: *Fear of cancer recurrence is a long-term psychological problem of the cancer survivors regardless of the type of cancer. A growing number of studies had addressed fear of cancer recurrence, yet they are largely focused on the breast cancer survivors of the western world countries. This study investigates the fear of cancer recurrence and its relations to social support in Indonesian gynecological cancer survivors.* **Methods:** *Gynecological cancer survivors (n = 153) in Samarinda, East Kalimantan, Indonesia completed Fear of Cancer Recurrence Inventory, Interpersonal Support Evaluation List, socio-demographic and clinically-related characteristics questionnaires. Pearson r correlation tests, t-tests, and ANOVAs were used to identify the relationships between variables, and linear regression to determine to what extent the social support may predict the survivors' fear of recurrence.* **Results:** *Indonesian gynecological cancer survivors with higher social support were more likely to experience lower levels of fear of cancer recurrence. Whereas, having a family history of cancer was an important predictor of fear of cancer recurrence levels.* **Conclusion:** *Social support plays an essential role in predicting fear of cancer recurrence among Indonesian gynecological cancer survivors.*

Key words: *Gynecological cancer; Survivors; Social Support; Fear*

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INTRODUCTION

Fear of cancer recurrence (FCR) is among the top concerns of cancer survivors regardless of the type of cancer (1). For the gynecological cancer (GC) survivors, recurrence is indeed a major issue due to its high recurrence rates coupled with its tendency of being asymptomatic and diagnosed at advanced stage (2). Many women with GC are aware of this fact and experience a constant fear of having cancer over time (3,4). Despite some conflicting findings of the FCR prevalence and its relations with the cancer prognosis and survival, a recent review suggests that FCR is a ubiquitous and persistent among the cancer survivors and is strongly associated with lower quality of life (QOL) (5). FCR is also poorly addressed in the survivorship care planning and care even though its incidence has been much evident (6).

Many different factors can influence FCR, including sociodemographic, clinical, and psychological factors (5,7). Prior studies indicated that cultural background may account for variance of FCR (8,9). Researchers posit that different cultural groups may have distinct coping style, communication style, and social support which contribute to FCR variability (5,8). The belief such as fatalism, i.e. pessimistic view about the probability of surviving a disease, remains evident in many cultures, as shown, for example, in studies done in Turkey (10) and Portugal (11). Such belief may shape the way women perceive their experience of living with GC. In addition, a study in Iran showed how Iranian cancer patients frequently had high level of FCR mainly due to their concern about their family and children, not because of their own self-concern (12). In line with this, another study suggested what women fear the most about having their cancer back – it was the implication of their inability to perform social roles, especially their motherhood or womanhood roles, which were then associated with the poor QOL (13). These studies are among the many evidences regarding the interplays of the sociocultural dimension of FCR.

Since FCR may have prominent sociocultural attributes, it deemed necessary to examine FCR in Indonesia. Indonesia, as a middle-income country in South-east Asia has a high incidence of GC, with cervical cancer being the most prevalent (14,15). The number of GC survivors is continuously increasing due to the large population and high incidence, albeit low survival (16). Cancer survivorship issues, including FCR, are mostly unexplored in Indonesia (17). Hence, there is still insufficient basis for understanding and addressing this problem.

On a different note, Indonesian people hold a strong collectivist culture (18). Studies found that in Indonesia GC survivors received social, emotional, spiritual, and even financial support not only from their family or close relatives but also from their neighbors and colleagues (19,20). Whether this common social feature may influence the FCR among the GC survivors in Indonesia is yet unknown. This study was therefore conducted to assess the relationship of FCR with social support and sociodemographic characteristics of Indonesian GC survivors.

MATERIAL AND METHODS

The protocol of this cross-sectional study was approved by the Ethical Committee of the University of Indonesia, Faculty of Nursing before the commencement of the study. Ethical principles of human subject study were maintained in accordance to Declaration of Helsinki. The essential information of the study aims and purposes, procedures, and participants' rights were given through oral explanation and participant information sheet. All participants signed the informed consent voluntarily. We also ensured that the study procedures had no or minimum potential of harming participants either physically or psychologically. All data were anonymized and kept in a confidential data management system.

Sample

This analytic correlational study was conducted at the outpatient unit of the Abdul Wahab Sjahranie hospital in Samarinda, Kalimantan Timur, Indonesia. Samarinda is the capital of Kalimantan Timur province, the second largest province in Indonesia which is home to many indigenous ethnic groups, including Dayak - the major native group in the inland Kalimantan (21). The study setting was in the referral hospital for cancer patients from all regions of Kalimantan Timur province.

Patients attending the outpatient unit for post-treatment follow-up care were approached by the first author. A patient was deemed eligible for the study if following criteria were met: (a) having been diagnosed with GC of any type and stage, (b) having completed primary cancer treatment including surgery, chemotherapy, and/or radiation therapy, (c) having no current cancer recurrence in the primary site or another area, (d) being able to communicate in Indonesian language, and (e) being able to give consent to the study.

INSTRUMENTS

Participant characteristics

The background questionnaire comprised of items of socio-demographic characteristics including age, education, occupation, marital status, monthly household income, and cancer-related information including cancer stage and family history of cancer.

Social support

We used original 40-item Interpersonal Support Evaluation List (ISEL), developed by Cohen and Hoberman, to measure the functional social support of the participants (22). The measurement subscales in ISEL were theoretically derived from four domains of social support resources that were posited to buffer the effects of stressful events (22). These domains were: (a) tangible support, the perceived availability of the material aid; (b) appraisal support, the perceived ability of someone to discuss personal issues with; (c) self-esteem support, the existence of other people with whom the individual could conveniently compare; and (d) belonging support, that is, the individual perception about the presence of a group to identify and socialize with (22). This questionnaire has often been used, in different populations and settings (23). It has shown to have good internal consistency, reliability, test-retest reliability, convergent validity (24), and moderate inter-correlations among the four subscales (25). The Indonesian version of ISEL was examined in a prior study with Cronbach $\alpha = 0.88$ (26).

Fear of Recurrence

In assessing FCR in the participants, we used the Fear of Cancer Recurrence Inventory (FCRI) (27). FCRI is a 42-item questionnaire based on the cognitive-behavioral model to measure FCR from the dimensions of: (a) cancer-related triggers, (b) severity, (c) psychological distress, (d) coping strategies, (e) functioning impairments, (f) insight, and (g) reassurance (27,28). This tool has demonstrated psychometric properties (29,30) and good reliability in its Indonesian version (Cronbach $\alpha = 0.93$) (31). FCRI has established sensitivity and specificity for the cutoff score of 13 to determine the clinically severe FCR (28).

Procedure

Following ethical approval and permission from the hospital, the proposed study and its procedures were introduced to head and staff nurses, and other health care professionals in the gynecological outpatient unit. The head and staff nurses assisted in identification of potential patients. Potential patients confirmed their diagnosis and past cancer treatments. Participants, who had given their informed consents, completed the questionnaires in the presence of questioners to have the opportunity to resolve any question or difficulty. Of 163 patients approached, 153 patients agreed to participate (participation rate = 93.87%).

Data analysis

The socio-demographic, cancer-related characteristics, social support, and FCR data were calculated for the descriptive analysis of this study. After measuring data normality, Pearson's correlation tests, t-tests, and ANOVAs were performed to identify the associations of the social support, socio-demographic and cancer-related characteristics with the FCR. Lastly, we performed a linear regression analysis to determine the factors which mostly account for the FCR. The data analysis was conducted using SPSS software (version 17, SPSS Inc. Chicago, IL, USA). P value was set at < 0.05 for the statistical significance.

RESULTS

The mean age of the participants was 51.05 years (SD= 11.80 years). More than half of the participants finished senior high school and with salary lower than the average minimum wage for Samarinda region (USD 183 per month or USD 2196 per annum). The majority of the participants was married diagnosed with stage four GC, and had a family history of cancer. The participants' characteristics were summarized in Table 1.

Age	Mean = 51.05 (SD = 11.80) Median= 51 Min-max = 26-80
Variables	**N (%)**
Education	
Up to elementary school	16 (10.50)
Junior high school	29 (19.00)
Senior high school	89 (58.20)
College/college degree	19 (12.30)
Marital status	
Single/never married	5 (3.30)
Married	148 (96.70)
Occupational status	
Working	79 (51.60)
Not working	74 (48.40)
Monthly income	
Higher than the local average minimum income	25 (34.00)
Lower than the local average minimum income	101 (66.00)
Cancer stage	
2	10 (6.50)
3	32 (21.00)
4	111 (72.50)
Family history of cancer	
Yes	88 (57.50)
No	65 (42.50)

Table 1. Participants' characteristics

Our data were normally distributed and hence not distracted by outliers. Participants were found to have good social support, as can be seen in Table 2. On the other hand, the average score of FCR was 113.48 (SD = 18.64, 95% CI = 110.51 – 116.46), showing that the participants'

	Mean	SD	95% CI
Social support	83.65	14.15	81.39 - 85.91
Appraisal support	20.37	3.51	19.81 - 20.93
Tangible support	20.71	3.36	20.17 - 21.25
Belonging support	22.03	3.62	21.45 - 22.60
Self-esteem support	20.53	5.00	19.73 - 21.33
Fear of Recurrence	113.48	18.64	110.51 - 116.46
Triggers	22.53	4.12	21.87 - 23.19
Severity	20.42	4.02	19.78 - 21.06
Psychological distress	11.44	2.74	11.01 - 11.88
Functional impairments	13.72	4.27	13.04 - 14.40
Insight	8.46	2.09	8.13 - 8.80
Reassurance	9.18	1.64	8.91 - 9.44
Coping strategies	27.67	4.38	26.97 - 28.37

Table 2. The social support and fear of cancer recurrence of the participants

level of FCR was high. Of all FCR subscales, reassurance was the highest as the mean score was closest to its maximum score.

Table 3 is the summary of the results of the bivariate analysis between socio-demographic and disease characteristics and FCR. Pearson correlation test revealed that age was positively related to FCR ($p < 0.01$), thus the older the participants the more likely they experienced FCR. Age was found to be significantly associated with five domains of FCR and not associated with coping strategies and insight domains (Table 3).

The ANOVA results yielded significant differences between: (a) level of education and domains of trigger ($F = 30.25$, $p < 0.01$), severity ($F = 45.24$, $p < 0.01$), psychological distress ($F = 27.08$, $p < 0.01$), functioning impairment ($F = 30.62$, $p < 0.05$), insights ($F = 14.43$, $p < 0.05$), and reassurance ($F = 15.72$, $p < 0.01$), (b) cancer stage and domains

Triggers					
Variable	SE	P value	r	F	T
Marital status					
Single/never married	1.30	0.11			1.23
Married	0.24				
Occupational status					
Working	0.25	0.001			1.13
Not working	0.29				
Monthly income					
> average minimum income	0.26	0.001			-2.50
< average minimum income	0.22				
Education					
Up to elementary school	0.61	0.001			
Junior high school	0.49		0.74	30.25	-0.68
Senior high school	0.30				
College/college degree	0.48				
Cancer stage					
2	1.63	0.001			
3	0.48				0.84
4	0.26				
Family history of cancer					
Yes	0.23	0.001			5.53
No	0.26				
Age		0.003 (R = 0.25)			

Table 3. Relationship between socio-demographic and cancer-related characteristics with fear of cancer recurrence (continued)

Severity					
Variable	SE	P value	r	F	T
Marital status					
Single/never married	1.02	0.63			0.14
Married	0.23				
Occupational status					
Working	0.24	0.001			1.18
Not working	0.29				
Monthly income					
> average minimum income	0.27	0.001			-1.18
< average minimum income	0.21				
Education					
Up to elementary school	0.67	0.002			
Junior high school	0.49		0.81	45.24	-0.03
Senior high school	0.30				
College/college degree	0.42				
Cancer stage					
2	1.28	0.10			
3	0.47				0.38
4	0.27				
Family history of cancer					
Yes	2.40	0.001			8.85
No	2.62				
Age		0.036 (R = 0.17)			

Table 3. (Continued)

Psychological distress					
Variable	SE	P value	r	F	T
Marital status					
Single/never married	0.40	0.74			-0.72
Married	0.23				
Occupational status					
Working	0.24	0.001			1.47
Not working	0.29				
Monthly income					
> average minimum income	0.21	0.001			-1.54
< average minimum income	0.24				
Family history of cancer					
Yes	2.43	0.001			5.96
No	3.65		0.73	27.08	
Education					
Up to elementary school	0.38	0.002			
Junior high school	0.29				-0.31
Senior high school	0.21				
College/college degree	0.36				
Cancer stage					
2	0.69	0.04			
3	0.35				1.27
4	0.17				
Age		0.002 (R = 0.25)			

Table 3. (Continued)

of trigger ($F = 30.25$, $p < 0.01$), psychological distress ($F = 27.08$, $p < 0.05$), and coping strategies ($F = 6.11$, $p < 0.05$). Furthermore, based on our t-tests results FCR was related with occupational status (p

Insight					
Variable	SE	P value	r	F	T
Marital status					
Single/never married	0.92	0.47			0.18
Married	0.17				
Occupational status					
Working	0.20	0.001			0.36
Not working	0.24				
Monthly income					
> average minimum income	0.23	0.001			-2.07
< average minimum income	0.18				
Family history of cancer					
Yes	0.19	0.001			4.18
No	0.21		0.61	14.43	
Education					
Up to elementary school	0.28	0.032			0.34
Junior high school	0.32				
Senior high school	0.15				
College/college degree	0.28				
Cancer stage					
2	0.51	0.25			0.18
3	0.26				
4	0.14				
Age		0.05 (R = 0.16)			

Table 3. (Continued)

Functioning impairments					
Variable	SE	P value	r	F	T
Marital status					
Single/never married	1.60	0.64			-0.90
Married	0.35				
Occupational status					
Working	0.33	0.001			1.19
Not working	0.50				
Monthly income					
> average minimum income	0.52	0.001			-2.59
< average minimum income	0.30				
Family history of cancer					
Yes	0.26	0.001			6.12
No	0.45		0.75	30.62	
Education					
Up to elementary school	1.29	0.016			0.67
Junior high school	0.54				
Senior high school	0.30				
College/college degree	0.57				
Cancer stage					
2	1.50	0.21			
3	0.52				
4	0.28				
Age		0.012 (R = 0.20)			

Table 3. (Continued)

Coping strategies					
Variable	SE	P value	r	F	T
Marital status					
Single/never married	1.73	0.16			-1.33
Married	0.25				
Occupational status					
Working	0.37	0.001			0.50
Not working	0.29				
Monthly income					
> average minimum income	0.30	0.001			-0.03
< average minimum income	0.32				
Family history of cancer					
Yes	0.34	0.001			3.44
No	0.26		0.45	6.11	
Education					
Up to elementary school	0.52	0.07			-0.81
Junior high school	0.55				
Senior high school	0.32				
College/college degree	1.24				
Cancer stage					
2	1.32	0.03			0.27
3	0.59				
4	0.27				
Age		0.17 (R = 0.09)			

Table 3. (Continued)

Reassurance					
Variable	SE	P value	r	F	T
Marital status					
Single/never married	0.42	0.29			0.46
Married	0.09				
Occupational status					
Working	0.12	0.001			1.05
Not working	0.11				
Monthly income					
> average minimum income	0.11	0.001			-0.86
< average minimum income	0.10				
Family history of cancer					
Yes	0.10	0.001			4.58
No	0.11		0.63	15.72	
Education					
Up to elementary school	0.17	0.001			-1.13
Junior high school	0.22				
Senior high school	0.12				
College/college degree	0.28				
Cancer stage					
2	0.31	0.05			0.77
3	0.20				
4	0.11				
Age		0.007 (R = 0.22)			

Table 3. (Continued)

< 0.01), monthly income (p < 0.01), and family history of cancer (p < 0.01) (Table 3), but not with marital status (p > 0.05).

Further, as shown in Table 4, all social support domains were negatively related with all FCR domains (r = -0.52 to -0.69, p < 0.01) i.e. participants with greater social support were more likely to have a lower fear of recurrence.

A bivariate analysis was performed to select the variables for multivariate modelling (p < 0.25). Based on this selection age vs severity, cancer

Triggers					
Model		**Unstandardised Coef.**	**Coef. β**	**P value**	**R^2**
F	70.80				
df	4				
(Constant)		35.72		0.001	
Income		-2.51	-0.29	0.001	0.66
Family history		1.80	0.21	0.004	
Tangible support		-0.30	-0.24	0.013	
Belonging support		-0.24	-0.21	0.028	
Severity					
Model		**Unstandardised Coef.**	**Coef. β**	**P value**	**R^2**
F	96.79				
df	4				
(Constant)		26.18		0.001	0.72
Income		-1.44	-0.17	0.006	
Family history		3.48	0.43	0.001	
Tangible support		-0.26	-0.22	0.001	
Self-esteem support		-0.14	-0.17	0.013	
Psychological distress					
Model		**Unstandardised Coef.**	**Coef. β**	**P value**	**R^2**
F	66.91				
df	3				
(Constant)		10.45		0.001	0.57
Occupation		1.03	0.18	0.004	
Family history		2.15	0.39	0.001	
Self-esteem support		-0.17	-0.32	0.001	
Functioning impairments					
Model		**Unstandardised Coef.**	**Coef. β**	**P value**	**R^2**
F	62.63				
df	4				
(Constant)		22.97		0.001	0.66
Income		-1.60	-0.18	0.010	
Family history		2.83	0.33	0.001	
Belonging support		-0.35	-0.30	0.001	
Self-esteem support		-0.13	-0.16	0.038	
Insight					
Model		**Unstandardised Coef.**	**Coef. β**	**P value**	**R^2**
F	32.33				
df	4				
(Constant)		13.19			0.47
Income		-0.81	-0.18	0.033	
Family history		0.80	0.19	0.041	
Appraisal support		-0.12	-0.21	0.025	
Self-esteem support		-0.09	-0.23	0.017	
Reassurance					
Model		**Unstandardised Coef.**	**Coef. β**	**P value**	**R^2**
F	34.14				
df	4				
(Constant)		11.12			0.48
Occupation		0.51	0.15	0.033	
Family history		0.76	0.23	0.006	
Appraisal support		-0.12	-0.26	0.005	
Self-esteem support		-0.06	-0.19	0.042	
Coping strategies					
Model		**Unstandardised Coef.**	**Coef. β**	**P value**	**R^2**
F	28.28				
df	3				
(Constant)		51.52			0.36
Marital status		-3.73	-0.15	0.023	
Appraisal support		-0.36	-0.28	0.008	
Belonging support		-0.42	-0.35	0.001	

Table 5. Linear regression analysis of the fear of cancer recurrence predictive factors

stage vs insight, and the marriage status vs all FCR variables were excluded from the modelling. The variables met the assumptions for linear regression and there were no multicollinearity between variables. Social support, occupation, income, family history of cancer, age, education, and cancer stage were included as the potential predictor variables. Previous studies showed that cancer survivors from lower socioeconomic background were more likely to experience FCR (9,32), thus we included household income in the regression analysis. The category variables that we used in regression analysis may affect the intercept of model and the slopes of continuous variables through interaction (33). However, the interaction may give more insight into the model's prediction. The results of the regression analysis were presented in Table 5.

The results indicated that lower income accounted the most for the trigger of FCR ($F = 70.80$, $p < 0.01$), while having a family history of cancer most significantly predicted higher severity ($F = 96.79$, $p < 0.01$), psychological distress ($F = 66.91$, $p < 0.01$), and functioning impairments of the FCR ($F = 62.63$, $p < 0.01$). In addition, greater social support i.e. self-esteem support ($F = 32.33$, $p < 0.05$), appraisal support ($F = 34.14$, $p < 0.05$), and belonging support ($F = 28.28$, $p < 0.01$) mainly predicted lower FCR in the domains of insights, reassurance, and coping strategies, respectively.

DISCUSSION

Gynecological cancer survivors in our study generally reported high levels of FCR (mean = 113.48, SD = 18.64). Most of the participants had a higher level of reassurance score; it could be interpreted that the participants tended to perform self-examination due to their fear of having cancer back. The average severity of their FCR was 20.42 (SD = 4.07), indicating rather high presence and severity of FCR-related intrusive thoughts.

Simard and Savard's study (28) assert that cancer survivors with high levels of FCR are more likely to have clinically significant FCR. Previous attempt has been conducted to measure the clinical levels of FCR using face-to-face interview with FCRI-short form (SFCRI) and have established high sensitivity and specificity with clinical cutoff point of 13 or higher (28). However, given the dearth of a consensual definition and measure of clinical FCR and our lack of capacity to carry out clinical interviews using SFCRI, it was challenging to draw on clinical interpretation of our participants FCR levels. FCR topic has not been explored in Indonesia so far; therefore, we were unable to compare our findings with the prior study results in Indonesian population. Most studies reported low or moderate levels of FCR, measured by methods other than FCRI (9,34,35). Fewer studies suggested higher FCR levels among different types of cancer patients, for example in Iran (12), the United States (13,36), and Spain (37).

Further analysis showed that the FCR was primarily predicted by the family history of cancer. More than half of our participants had family history of cancer. Their fear was seemingly based on their previous empirical experience with the family member having cancer. Our participants were mostly of lower educational background and economic status that may not allow for sufficient information resources or scientific data access. A bulk of literature suggest that women with a first-degree family history of GC have a substantially higher risk of developing cancer than those

without a family history of cancer (38–40). On the other hand, prior qualitative studies in Indonesia indicate that the social circle of the GC survivors, including their family and friends are the influential source of information, also sharing information on the cancer genes passing through generations (19,20). This may also shape the survivors' view on cancer in their family history and their fear of recurrence. Nevertheless, whether Indonesian GC survivors receive adequate and accurate information regarding their risk of recurrence and cancer prognosis remains unknown. Therefore, despite the possibility of experiencing FCR because of lack of clear medical information (12), this should be interpreted carefully and warrant further investigation.

Our results show that social support is negatively correlated with FCR, meaning the GC survivors with greater social support are more likely to have lower FCR. This finding is consistent with the results from previous study that women with lower social support tend to report higher FCR (8,13). In the social-cognitive processing model, authors argued that social constraints may impede the cognitive processing of the cancer-related fear (13,41). However, it was also noted that the social context of the cognitive processing is of high importance among cancer patients since having cancer diagnosis is mostly perceived as a traumatic event (41).

In relation to the social and cognitive aspects of FCR, it was interesting to find out that our participants had good social support and yet high levels of FCR. Nevertheless, results of this study revealed family history as the most frequently emerging predictor of the FCR. Participants were holding on strong belief that they might have their cancer back since cancer was present in their families. This was evident in a greater degree even though the social support they were receiving was high. Yet, it is likely that the information exchange and support received from the social circle influenced patients' FCR and reinforced FCR related to having family history of cancer. Patients' cognitive process to develop belief and knowledge base of cancer recurrence may have significant interrelation with the external contact with their social environment (42), since Indonesia has a collectivism culture rooted in Chinese Confucianism (43). However, studies in China and Taiwan which have strong Confucianism culture showed positive impact of strong social support on quality of life (44,45). A study in Iranian culture showed otherwise; the social circle of the Iranian cancer patients tends to avoid giving information about cancer to the patients that contribute to the patients' misperception and high FCR levels (12).

While different kinds of social support were identified in this study, the belonging support was marked to be the highest although the other types of social support (appraisal, self-esteem, and tangible support) also scored high in average. According to the original definition by Cohen and Hoberman (22), belonging support refers to the existence of a group to identify and socialize with. As argued in previous studies, the social support for the cancer patients largely comes from their spouses, children, relatives, and friends (13,46). These sources may facilitate adaptation for their emotional concerns (13).

Furthermore, it is plausible to consider the influence of the peer GC survivors on how they perceive the fear of recurrence. Many authors point out that peer support is an important support source for GC survivors (47–49). The interactions among survivors may provide them a sense of identity and mutual understanding, as well as exchanged information (48,49). Peer support can offer a unique and separate social space apart from the family or other close social circle (50). Information and opinions coming from the other survivors may have deeper influence as they may be regarded as experiential knowledge, including those which may induce the fear of cancer recurrence (49). Also, if the patient has a family member to whom she refers her cancer experience, it may influence her FCR to a bigger extent. Cancer patients in Indonesia commonly address to health care services at a late stage of cancer and have poor survival (51). Experiences from the patients' family members or other cancer survivors they meet along the course of their diagnosis may portray the unfortunate events and validate their fears. Local people (from East Kalimantan) hold significant social relations and a strong commitment towards solidarity that is accustomed to the premises of blood or geography (52). As previously noted, however, further studies are deemed necessary to explore the influence of social phenomenon on FCR among Indonesian GC survivors.

Some limitations of the present study should be taken into account when applying the study results or conducting further studies. This study was conducted at a hospital in one province in Indonesia, therefore it does not allow for generalization in different context. In the diverse cultural and religious settings such as Indonesia, future quantitative FCR studies should be built on sound qualitative studies to give a deeper and solid foundation. Another important limitation of this study is related to time. We did not include the temporal aspects in our measurement and only examined cross-sectional FCR, while research generally suggests that temporality matters in survivorship (53,54). It is recommended to conduct a similar study in different sites with longitudinal approach and larger sample size.

CONCLUSIONS

The gynecological cancer survivors in East Kalimantan, Indonesia experience higher levels of FCR, despite their highly perceived social support. Social support and family history of cancer are among the important predictors of FCR. Having higher social support in the forms of belonging support, self-esteem support, and appraisal support predicted lower FCR. Social support also plays an essential role in the social-cognitive processing of FCR in this study because of the strong social values of the East Kalimantan people. Our study raises an important implication to address FCR problem by providing education and support not only to the individual survivors but also involving their close social circles, e.g. family. Supportive care should consider the collectivist strategy of raising public awareness rather than solely focusing on individuals in the context with strong collectivist culture such as Indonesia.

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Declaration of Interests

Authors declare no conflicts of interest.

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