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Unravelling the Challenges of Information Literacy Skills among Female Librarians and Implications on Early Detection of Ovarian Cancer in Federal University Libraries in South-East Nigeria

Victoria Onyeoma Odegwo[1], **Doris Emetarom Aduba**[2]✉, and **Odegwo James Ifeanyi**[3]

1. Enugu State University of Science and Technology, Enugu, Nigeria. E-mail: vickybeauty_2@yahoo.com
2. *Corresponding author*, Enugu State University of Science and Technology, Enugu, Nigeria. E-mail: adubadoris311@gmail.com
3. Department of Computer Science, Renaissance University, Ugbawka, Enugu State, Nigeria. E-mail: writedegwo@gmail.com

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ABSTRACT

Objective: The correlation study investigated the challenges of information literacy skills among female librarians and implications on early detection of ovarian cancer (OvCa) in federal university libraries in South-East Nigeria.

Methods: The population of study was 341 female librarians from 5 federal university libraries in South-East Nigeria, from which sample of 174 female librarians was selected, which represented 51% of the population using proportionate stratified sampling technique. The instrument for data collection was a questionnaire, validated with a coefficient of 0.79. The data collected were analyzed using descriptive and inferential statistics of percentage counts, mean scores, standard deviation and Pearson Product Moment Correlation (PPMC), while the single null hypothesis was tested using linear regression statistics at 0.05 level of significance.

Results: The study revealed that information literacy skills possessed by female librarians for early detection of ovarian cancer include ability to determine the value of information on ovarian cancer, ability to locate information on ovarian cancer, ability to identify relevant information on ovarian cancer, etc. It found that the overall level of awareness of ovarian cancer among female librarians was very low. The study showed that there is a positive significant relationship between information literacy skills of female librarians and early detection of ovarian cancer. It identified lack of awareness of available information resources on ovarian cancer, inability to effectively recognize the need for information on ovarian cancer, inability to effectively evaluate information sources on ovarian cancer, limited digital literacy to access information on ovarian cancer in the internet, as the major challenge militating against the information literacy skills of female librarians with implications on early detection of ovarian cancer.

Conclusion: The study recommended that management of federal university libraries should make training of female librarians on information literacy skills a top priority in order to enhance their ability to evaluate and synthesize information resources, especially information resources on ovarian cancer since the disease is becoming a serious public health challenge.

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Introduction

Health is wealth and one of the major contributing factors to a healthy living is information. Information is paramount in every area of life, yet not everyone knows what information they need, when they need it, what sources of information are available to them and how they can use available information ethically for their utmost benefits. As a matter of fact, information that is available without effective recognition, access and intelligent use in solving a particular problem like early detection of ovarian cancer becomes useless. This perspective emphasizes the need for information literacy skills among female librarians as a prerequisite for early detection of ovarian cancer.

Ovarian cancer is a severe health challenge facing women, especially women who are over 50 years. It refers to any cancerous growth that begins in the ovary epithelium, the organs that produce eggs in females (Brazier, 2023). Ovarian cancer is described as the growth of cells that forms in the ovaries, which causes the cells to multiply quickly and invade or destroy healthy body tissues (Mayo Clinic, 2023).The American Cancer Society (ACS, 2022) reported that ovarian cancer is now the fifth common cause of cancer-related death among females, with over 19,880 women diagnosed of ovarian cancer in 2022. Studies indicated that though ovarian cancer might not show any noticeable signs or symptoms when it first develops, but the common signs or symptoms of ovarian cancer, which are usually attributed to other common health conditions(like premenstrual syndrome, irritable bowel syndrome, or a temporary bladder problem), include: abdominal bloating or swelling, quickly feeling full when eating, weight loss, discomfort in the pelvic area, fatigue, back pain, changes in bowel habits, such as constipation, frequent urination, among others (ACS, 2022; Brazier, 2023; Mayo Clinic, 2023).It is equally reported that the major risk factors of ovarian cancer include older age, inherited gene changes, family history of ovarian cancer, overweight or obesity, postmenopausal hormone replacement therapy, endometriosis, age when menstruation starts and ends, as well as infertility **(**ACS, 2022; Brazier, 2023; Mayo Clinic, 2023).This global health challenge facing the women, and seriously threatening social progress, requires improved competencies in information literacy to enhance the recognition and effective access, evaluation and use of ovarian cancer related information from diverse sources and formats by the female librarians.

Consequently, Bruce (2019) defined information literacy skills as the ability to recognize, access, evaluate, organize, and use information to learn, solve problems and make decisions in both formal and informal contexts such as at work, in educational settings and at home. Information literacy skills refer to a set of abilities that empower individuals to recognize when information is needed, locate it, evaluate its quality, and use it effectively (Okpala & Ailakhu, 2020; Udoh & Okafor, 2022). It is an essential capability in dealing with information in every situation by being able to recognize the need for information, locate it, evaluate it, and use it in the most proficient and beneficial way. It also characterizes the ability to efficiently and effectively find, access, and

retrieve information using search engines, databases, libraries, and other resources to address specific inquiries or needs (Forster, 2017). Information literacy skills are of utmost importance in early detection of ovarian cancer. It is therefore considered in the context of this study, as the ability to recognize, access, understand, evaluate, interpret, and use health information, especially such information related to ovarian cancer. This implies that possessing information literacy skills by female librarians is crucial in their ability to detect the signs and symptoms of ovarian cancer as well as track the associated risk factors and adopt preventive measures.

As a matter of fact, it is quite imperative from the above perspectives that information literacy skills remain essential in early detection, prevention and management of ovarian cancer. This aligns with the assertion of Chi *et al*. (2024), which noted that for individuals with ovarian cancer and their caregivers, successfully managing this complex cancer and treatment requires extensive and targeted information. It presupposes that when female librarians possess adequate information literacy skills, it will be possible for them to monitor the signs and symptoms of ovarian cancer, and seek medical help when necessary for themselves, while helping other women to gain knowledge and learn about ovarian cancer. It will also equip them to effectively provide ovarian cancer related information to other women in their university communities as well as provide awareness tips on ovarian cancer to external information users to enhance early detection, decision on treatment plans, and communication with healthcare professionals.

Meanwhile, despite the important of information literacy skills in early detection of ovarian cancer, studies revealed that most female librarians do not possess adequate information literacy skills such as mastery of information search skills like truncation search skill, Boolean search skills and evaluation of information on diverse topics (Olukemi, 2019). Most of female librarians do not also understand their roles and expectations in information literacy skills development (Leckie, as cited in Olukemi, 2019). These challenges seem to have multifaceted and grave implications on early detection of ovarian cancer among female librarians in federal university libraries, and yet there no clear empirical evidence on the major cause(s) of the challenges. Based on the above background, therefore, this study examined the challenges of information literacy skills among female librarians and implications on early detection of ovarian cancer (OvCa) in federal university libraries in South-East Nigeria.

Statement of the Problem

Ovarian cancer is, simply put, a life-threatening disease among women and the level of awareness or knowledge of the disease - its risk factors, symptoms, prevention or management is grossly poor. Studies revealed that ovarian cancer is a rare but deadly gynecological cancer, with high mortality rate due to complexity in managing (Chi et al., 2024; National Cancer Institute, 2023; Saki *et al.,* 2022). In Nigeria, most women, including female librarians in federal university libraries, which could be considered informed, enlightened and educated, seem to be ignorant of

even the signs as well as the effects of the disease. This may be attributed to poor information literacy skills since the knowledge of anything, including early detection of ovarian cancer could be traced to the level of information one is exposed to and the ability one has in accessing, evaluating, retrieving, and using the information in dealing with the prevailing situation. As a matter of fact, in considering this hitherto unchallenged observation, especially as there is no empirical evidence that proves otherwise, one is forced to imagine what could be the factors causing the poor information literacy skills among female librarians and the implications on early detection of ovarian cancer. Based on this backdrop, therefore, this study investigated the challenges of information literacy skills among female librarians and implications on early detection of ovarian cancer (OvCa) in federal university libraries in South-East Nigeria.

Research Objectives

The specific objectives of this study were to:

1. Identify the information literacy skills of female librarians for early detection of ovarian cancer in federal university libraries in South-East Nigeria.
2. Determine the level of awareness of the signs of ovarian cancer among female librarians in federal university libraries in South-East Nigeria.
3. Find out the challenges militating against the information literacy skills of female librarians and implications on early detection of ovarian cancer in federal university libraries in South-East Nigeria.
4. Examine the relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Hypothesis

A null hypothesis was formulated and tested at 0.05 level of significance

H0₁: Information literacy skills of female librarians have no significant relationship with early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Literature Review

Information literacy skills may be considered as one of the most prominent factors in early detection of any health challenge, including ovarian cancer. Information literacy skills constitute various forms of literacy skills that are becoming essential skills for today's survival and professional effectiveness, involving the abilities and competencies that drive an information literate person and society (Udoh & Okafor, 2022). The Association of College and Research Libraries (ACRL, 2016) defined information literacy skills as the ability to recognize information needs, and to effectively identify, locate, retrieve, evaluate, and use information ethically and legally. It allows people to effortlessly and intelligently search and critically evaluate, obtain and use information in solving problems (Osiebe *et al.*, 2023). It entails the ability to think critically

and make balanced judgements about any information we find and use (Chattered Institute of Library and Information Professionals (CILIP) Information Literacy Group, 2018). It incorporates a set of interrelated and integrated capabilities which everyone needs to undertake information-related tasks such as how to discover, access, interpret, analyze, manage, create, communicate, store, and share information on any matter. It is very crucial in early detection of ovarian cancer.

Jayson *et al.* (2014) defined ovarian cancer as a type of cancer that originates in the ovaries, which are the female reproductive organs responsible for producing eggs. It occurs when abnormal cells in the ovaries multiply uncontrollably, forming tumors. Ovarian cancer is one of the most challenging gynecological cancers in the world, with a profound negative effect on the quality and length of life affecting more than 70% of the women diagnosed with advanced disease (Lockwood-Rayermann *et al.*, as cited in Saki *et al.,* 2022). The National Cancer Institute (NCI, 2023) conceived ovarian cancer as a rare but deadly gynecological cancer. Similarly, Seib *et al.* (2019); and Urbaniec *et al.*, as cited in Pasvanis *et al.* (2023) reported that ovarian cancer is the third most common gynecological cancer, with high mortality and complexity in managing (Chi et al., 2024).

Studies indicated that ovarian cancer could develop and spread throughout the abdomen before it causes any symptoms, which makes early detection difficult. This underscores the positions of Chi *et al.* (2024); Lockwood-Rayermann *et al.,* as cited in Saki *et al.* (2022), which reported that most women have little or no knowledge about the possible symptoms, risk factors and the dangers ovarian cancer poses to them. Meanwhile, the common signs and symptoms of ovarian cancer include pelvic or abdominal pain, discomfort or bloating, changes in eating habits like getting full quickly or losing appetite, vaginal discharge or abnormal bleeding, bowel changes, such as diarrhoea or constipation, frequent urination, etc. (ACS, 2022; Brazier, 2023; Mayo Clinic, 2023; NCI, 2023). In considering the above scenarios, it becomes imperative to assume that information literacy skills of female librarians are very crucial antidotes to early detection and possible prevention of ovarian cancer.

More so, several factors typically militate against the information literacy skills of female librarians and hampers early detection of ovarian cancer. Ovcharuk et al. (2023) reported that limited ability to access information can hinder the ability to retrieve latest information, guidelines, or clinical trials relevant to early detection. Inability to efficiently and effectively understand, manage and synthesize information to extract the most valuable insights for early detection, due to language barriers and limited health information literacy skills among female librarians are also challenges to early detection of ovarian cancer (Cho, et al., 2023; Mpungose, 2023). Technological barriers such as difficulties in navigating complex search interfaces, limited familiarity with advanced search techniques, inadequate training to utilize specific electronic resources, and lack of technological expertise for effective access and use of electronic resources among female librarians are equally hampering early detection (Lowe et al., 2021). Poor training of female

librarians, inadequate technological facilities, poor state of power supply, and poor access to the internet are also factors affecting information literacy skills of female librarians.

Chi *et al.* (2024) investigated women with ovarian cancer's information seeking and avoidance behaviors. The studies revealed that majority of the women were associated with active information seeking behavior, with some in passive information acquisition, and information avoidance behavior. It showed that women preferred information sources for ovarian cancer management from health organization, government operated resources and web-based social groups. It suggested that to enhance information access strategies should be developed to motivate women with ovarian cancer to seek rather than avoid information.

Li *et al.* (2024) conducted a cross-sectional study on cancer literacy differences of basic knowledge, prevention, early detection, treatment and recovery in urban and rural residents in Northeast China. The study revealed that the overall cancer literacy rate was low. It showed that the awareness rates regarding cancer-related risk factors and early diagnosis of cancer were notably inadequate. It indicated that rural participants exhibited lower cancer literacy across all dimensions compared to urban areas, while factors such as advanced age, limited education or low household income were barriers to health literacy in rural areas. This is also as Pasvanis *et al.* (2023), which examined the experiences and priorities of women with a diagnosis of ovarian cancer, revealed that the fear of ovarian cancer recurrence is the most challenging aspect of having ovarian cancer. It showed that when compared older women with young ones, the younger women are more inclined to use mobile app version of the Ovarian Cancer Australia (OCA) resilience kit, and expressed interest in using information on fertility preservation decision aid than older women.

In a similar study, Onanuga *et al.* (2022) examined information literacy skills of librarians in selected academic libraries in South-Western, Nigeria. The study revealed that majority librarians acquire information literacy skills through self-development, training, and seminars. It showed irregular training, inadequate technological facilities, poor state of power supply, low level of development in Nigeria, shortage of skilled manpower, low literacy level of people and lack of access to the internet are some of the factors affecting the information literacy skills of librarians. The study recommended that, apart from finding lasting solutions to the highlighted factors, information literacy should be taught as a priority course in library schools.

Saki *et al.* (2022) also conducted a cross-sectional multilevel study in Dubai using a multicultural society on the barriers to healthcare seeking, beliefs about ovarian cancer and the role of socio-economic position. The study revealed that the recognition level of ovarian cancer symptoms among women varied from 12-51%, with the most alarming symptoms being back pain, eating difficulties, and persistent abdominal pain. It showed that the most recognized ovarian cancer risk factors are infertility, menopause, personal or family history of breast cancer. The study indicated that women with higher educational levels had better knowledge of ovarian cancer

compared to women with lower of education. It showed that public awareness of ovarian cancer was weak, while women were often diagnosed at late stages when treatment was difficult. The study concluded that strengthening education among women with regards to risk factors, early symptoms, and the need to seek early medical help should be increased in order to improve ovarian cancer awareness and reduce a delay in the diagnosis.

In another relevant research, Odegwo *et al.* (2021) evaluated information needs of female academics and resources utilization for early detection of ovarian cancer symptoms in Enugu, South-East Nigeria. The study showed that the women had various information needs about ovarian cancer such as personal risks, causes of cancer, healthy habits to reduce risk of cancer, signs and symptoms, who or group to contact for relevant information, physical nature of ovarian cancer, information about managing the fear of occurrence, how ovarian cancer acts in the body and sexual implication of ovarian cancer. It revealed that both older and younger female academics need health information about their personal risk of ovarian cancer. The study also indicated that there is no significant difference between the mean ratings of the older and younger female academics in Enugu on their health information needs regarding early detection of ovarian cancer. The study recommended that the institutions should liaise with information providing agencies to make adequate information resources available for the women on various health related issues including ovarian cancer to enable early detection of ovarian cancer signs and symptoms.

Furthermore, Okunowo and Adaramoye (2018) conducted an institutional-based study on women's knowledge of ovarian cancer symptoms and risk factors in Nigeria. The study revealed that knowledge of ovarian cancer was extremely poor among women in Lagos, Nigeria. It showed that high level of education and previous conversation with doctors on ovarian cancer was the only factors that significantly predicted good knowledge of symptoms and risk factors. The study recommended that education of the girl child and health education of women about the ovarian cancer by healthcare providers should be given considerable attention to significantly enhance women's knowledge and encourage early presentation and detection of the disease.

In an equally related study, Anyaoku*et al.* (2015) investigated information literacy practices, skills, level of involvement of librarians and inhibitors to information literacy programmes in universities in the South-east Nigeria. The study showed that librarians most possess traditional information literacy skills to locate information physically but lack information technology skills like creating web pages, use of reference managers and Boolean search techniques. It revealed that there is a low level of use of ICT tools for teaching information literacy, with their lack of effective information literacy skills attributed lack of institutional information literacy policy and support to drive information literacy. The study recommended that academic librarians in Nigeria should plan and lobby for effective implementation of information literacy standalone credit bearing course in Nigerian universities.

From the above review, although many studies have been conducted on information literacy skills, ovarian cancer and information seeking related to ovarian cancer, which have highlighted in some ways, some challenges militating against information literacy skills, generally, but none has been conducted on the challenges of information literacy skills among female librarians and the implications on early detection of ovarian cancer (OvCa) in federal university libraries in South-East Nigeria. Thus, this study was carried out to fill the observed gap in literature.

Materials and Methods

The correlation research design was adopted for the study, with a population of 341 female librarians from 5 federal university libraries in South-East Nigeria. The population comprises 15 female librarians from Alex Ekwueme Federal University (AE-FUNAI) Library, Ndufu-Alike, Ebonyi State; 13 from Federal University of Technology, Owerri (FUTO) Library, Owerri, Imo State; 47 from Michael Okpara University of Agriculture Umudike (MOUAU) Library, Abia State; 67 from Nnamdi Azikiwe University (UNIZIK) Library, Awka, Anambra State; and 199 from University of Nigeria Nsukka (UNN) Library, Enugu State. From the study population, a sample of 174 female librarians was selected, which indicated 51% representation across the five (5) federal university libraries. The proportionate stratified sampling technique was used in selecting the sample size as a means of giving every member of the various strata (federal university libraries) equal and the same chance of being selected for the study. The population and sample distributions are represented in Table 1 below.

Table 1. Population and Sample Distribution of the Study

S/No.	University Libraries	No. of Population	No. of Sample
1.	Alex Ekwueme Federal University (AE-FUNAI) Library, Ndufu-Alike, Ebonyi State	15	8
2.	Federal University of Technology, Owerri (FUTO) Library, Owerri, Imo State	13	7
3.	Michael Okpara University of Agriculture Umudike (MOUAU) Library, Abia State	47	24
4.	Nnamdi Azikiwe University (UNIZIK) Library, Awka, Anambra State	67	34
5.	University of Nigeria Nsukka (UNN) Library, Enugu State	199	101
	Total	**341**	**174**

The instrument for data collection was a researcher's developed questionnaire entitled, "*Challenges of Information Literacy Skills among Female Librarians and Implications on Early Detection of Ovarian Cancer Questionnaire - CILSFLIEDOCQ).*"The questionnaire was divided into two (2) sections A and B. Section "A" contains the bio-data of the respondents indicating their institutions, age bracket, academic qualification and department, while section " B" was developed under three (3) clusters with a total of thirty (30) items, on a four-point rating scale. The draft questionnaire was validated by two (2) research experts; one from the Library and Information Science and one from Measurement and Evaluation disciplines to ensure its suitability and

appropriateness. It was further pre-tested using ten (10) female librarians from University of Uyo, Uyo, Akwa Ibom State, and their responses were analyzed using Cronbach Alpha formula, which yielded a reliability coefficient of 0.79. Consequently, 174 copies of the questionnaire were distributed to the respondents, out of which, a total 159 copies representing 91% response rate were completed, retrieved and found useful for the analysis. The data collected were analyzed using descriptive and inferential statistics. Research objectives 1, 2and 3 were analyzed using descriptive statistics of percentage counts, mean scores and standard deviation with a criterion mean of 2.50. On the hand, objective 4 was analyzed using Pearson Product Moment Correlation (PPMC) to determine the degree of association or relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria. The strength of the association between the variables was measured and interpreted using Creswell's correlation coefficient scale as cited in Akwang et al. (2024). The scale indicated that a correlation coefficient (r) of ±0.00 - 0.20 = very low relationship, ±0.21 - 0.40 = low relationship, ±0.41- 0.60 = moderate relationship, ±0.61 - 0.80 = high relationship, while ±0.81 - 1.00 = very high relationship. The single null hypothesis was tested using linear regression statistics at 0.05 level of significance. The decision rule held that reject the null hypothesis if p-value is less than the alpha value at 0.05 level of significance, and accept the null hypothesis if p-value is greater than the alpha value at 0.05 level of significance.

Results

Results of the study were presented in line with the specific objectives in tables to show the percentage counts, mean scores, standard deviations and correlation coefficient in answering the research questions, as well as linear regression to test the hypothesis. Meanwhile, a simple chart was also used to show the questionnaire distribution and retrieval.

Table 2. Questionnaire Distribution and Retrieved by Institution

S/No	University Libraries	No. of QD	No. of QR	%
1.	Alex Ekwueme Federal University (AE-FUNAI) Library, Ndufu-Alike, Ebonyi State	8	6	4
2.	Federal University of Technology, Owerri (FUTO) Library, Owerri, Imo State	7	6	4
3.	Michael Okpara University of Agriculture Umudike (MOUAU) Library, Abia State	24	22	14
4.	Nnamdi Azikiwe University (UNIZIK) Library, Awka, Anambra State	34	31	19
5.	University of Nigeria Nsukka (UNN) Library, Enugu State	101	94	59
	Total	***174***	***159***	***100***

Source: Researcher's Field Survey, 2024

KEYS: *QD = Questionnaire Distribution; QR = Questionnaire Retrieval*

Data in Table 2 showed the questionnaire distribution and retrieval rate across the 5 federal university libraries under investigation. It revealed that out of the 174 copies of the questionnaire distributed, 159 copies were completed and retrieved with valid information.

It further indicated that University of Nigeria Nsukka (UNN) library has the highest number of female librarians in the South-East Nigeria with a total 101, while 94 librarians representing 59% completed the questionnaire, followed by Nnamdi Azikiwe University (UNIZIK) library with a total of 43 female librarians, while 31 (19%) completed the questionnaire, and Michael Okpara University of Agriculture Umudike (MOUAU) library, with 24 female librarians while 22 (14%) completed the questionnaire. In addition, Alex Ekwueme Federal University (AE-FUNAI) and Federal University of Technology, Owerri (FUTO) Libraries have 8 and 7 female librarians, respectively, while 6 respondents each representing 4% each completed the questionnaire. In all, a total of 159 respondents was a good representation for this study. Meanwhile, the above Table is represented in the chart below for better clarification.

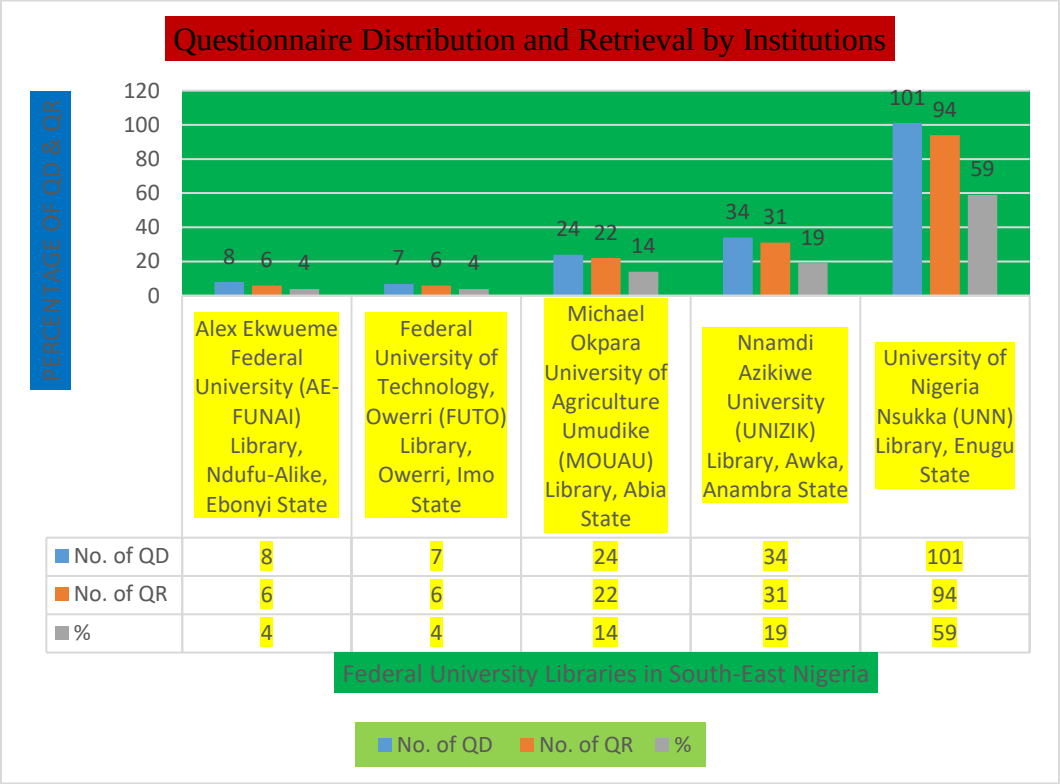

Figure 1. Chart showing the questionnaire distributed (QD), questionnaire retrieved (QR) and percentage rate (%) from the five (5) federal university libraries in South-East Nigeria

Research Objective 1: To identify the information literacy skills of female librarians for early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Data in Table 3 showed the mean and standard deviation responses of information literacy skills of female librarians for early detection of ovarian cancer in federal university libraries in South-East Nigeria. It revealed a higher grand mean of 2.80 against the 2.50 criterion mean. The result indicated that out of the 10 areas of information literacy skills for early detection of ovarian cancer investigated, the respondents agreed to possessing skills in 7 areas such as: ability to determine the value of information on ovarian cancer (3.43, 0.62); ability to locate information on ovarian cancer (3.34, 0.78); ability to identify relevant information on ovarian cancer (3.25, 0.77); ability to access the information on ovarian cancer (3.08, 0.77); and ability to effectively use information in detecting ovarian cancer (3.03, 0.78). Others are: ability to communicate information in print and electronic formats via books, journals, etc. pertaining to ovarian cancer (2.89, 0.79); and the knowledge of the nature of information on ovarian cancer (2.72, 0.84). On the contrary, the respondents disagreed to having the ability to determine information searching strategies like truncation searching, Boolean searching, etc. for early detection of ovarian cancer (2.12, 0.89); effectively evaluate information sources on ovarian cancer (2.06, 0.79); and the ability to understand legal and ethical issues of information relating to ovarian cancer (2.03, 0.95).

Table 3. Mean and standard deviation responses of information literacy skills of female librarians for early detection of ovarian cancer in federal university libraries in South-East Nigeria (n = 159)

S/N	Item statements	SA	A	D	SD	Mean	Std. Dev.	Remark
1.	I have the ability to identify relevant information on ovarian cancer	67	70	17	5	3.25	0.77	Agreed
2.	I can determine information searching strategies like truncation searching, Boolean searching, etc. for early detection of ovarian cancer	12	37	68	42	2.12	0.89	Disagreed
3.	I have the ability to locate information on ovarian cancer	79	60	15	5	3.34	0.78	Agreed
4.	I can effectively evaluate information sources on ovarian cancer	13	15	100	31	2.06	0.79	Disagreed
5.	I have the knowledge of the nature of information on ovarian cancer	25	80	39	15	2.72	0.84	Agreed
6.	I have the ability to access the information on ovarian cancer	51	73	32	3	3.08	0.77	Agreed
7.	I can effectively use information in detecting ovarian cancer	44	82	27	6	3.03	0.78	Agreed
8.	I have the ability to determine the value of information on ovarian cancer	79	69	11	0	3.43	0.62	Agreed
9.	I understand legal and ethical issues of information relating to ovarian cancer	17	23	66	53	2.03	0.95	Disagreed
10.	I have the ability to communicate information in print and electronic formats via books, journals, etc. pertaining to ovarian cancer	33	85	32	9	2.89	0.79	Agreed
	Grand Mean					***2.80***	***0.80***	***Agreed***
	Criterion Mean					***2.50***		

Source: Researcher's Field Survey, 2024

Research Objective 2: To determine the level of awareness of the signs of ovarian cancer among female librarians in federal university libraries in South-East Nigeria.

The data in Table 4 revealed that the overall level of awareness of the signs of ovarian cancer among female librarians in federal university libraries in South-East Nigeria, is very low, with a lower grand mean of 2.33 against the 2.50 criterion mean. The result specifically indicated that the female librarians were merely aware of bloating or swelling in the abdomen as a sign of ovarian cancer (2.64, 0.70); severe back pain (2.67, 0.88); abdominal pain or cramping (2.58, 0.78); and frequent urination (2.53, 0.86) as signs of ovarian cancer. It further indicated the respondents' disagreement, showing that majority of the female librarians are not aware of other investigated signs of ovarian cancer such as persistent fatigue (2.28, 0.80); persistent weight loss (2.26, 0.80); pelvic pain or discomfort (2.16, 0.79); persistent eating difficulty or feeling full quickly while eating (2.13, 0.84); lymph node enlargement (2.06, 0.78); and severe pain during intercourse (1.97, 0.74). From this result, the low level of awareness is a major cause for concern with strong implications on early detection of ovarian cancer among female librarians. This can be attributed to how the female librarians apply their information literacy skills in accessing, location, evaluation and use of available information on ovarian cancer.

Table 4. Mean and standard deviation responses on the level of awareness of the signs of ovarian cancer among female librarians in federal university libraries in South-East Nigeria (n = 159)

S/N	Item statements	HA	A	FA	NA	Mean	Std. Dev.	Remark
1.	I am aware that bloating or swelling in the abdomen is a sign of ovarian cancer	9	94	45	11	2.64	0.70	Agreed
2.	I am aware that pelvic pain or discomfort is an early symptom of ovarian cancer	15	19	102	23	2.16	0.79	Disagreed
3.	I know that abdominal pain or cramping signals ovarian cancer	11	89	41	18	2.58	0.78	Agreed
4.	I am aware that persistent eating difficulty or feeling full quickly while eating is an early sign of ovarian cancer	13	29	83	34	2.13	0.84	Disagreed
5.	I know that frequent urination is a sign of ovarian cancer	26	45	76	12	2.53	0.86	Agreed
6.	I am aware that severe pain during intercourse is a sign of ovarian cancer	8	17	97	37	1.97	0.74	Disagreed
7.	I know that persistent weight loss is a sign of ovarian cancer	13	38	86	22	2.26	0.80	Disagreed
8.	I know that persistent fatigue is a sign of ovarian cancer	11	43	84	21	2.28	0.80	Disagreed
9.	I am aware that severe back pain is a sign of ovarian cancer	27	70	45	17	2.67	0.88	Agreed
10.	I am aware that lymph node enlargement is a sign of ovarian cancer.	10	23	92	34	2.06	0.78	Disagreed
	Grand Mean					***2.33***	***0.80***	***Disagreed***
	Criterion Mean					***2.50***		

Source: Researcher's Field Survey, 2024

Research Objective 3: To find out the challenges militating against information literacy skills of female librarians with implication on early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Data in Table 5 showed an overwhelming affirmation of the challenges militating against the information literacy skills of female librarians with implications on early detection of ovarian cancer in the federal university libraries in South-East Nigeria, with a higher grand mean of 3.10 against the 2.50 benchmark mean. The result revealed that the major challenges militating against the information literacy skills of female librarians with implication on early detection of ovarian cancer include lack of awareness of available information resources on ovarian cancer(3.38, 0.65); inability to effectively evaluate information sources on ovarian cancer (3.28, 0.64); inability to effectively recognize the need for information on ovarian cancer (3.15, 0.73); limited digital literacy to access information on ovarian cancer in the internet (3.13, 0.62); and poor funding of libraries for training of librarians (3.12, 0.85). Others include are: inability to effectively synthesize information on ovarian cancer (3.01, 0.81); busy schedules and time constraints (3.00, 0.90); difficulty in understanding complex or technical medical terms related to ovarian cancer (2.98, 0.89); misleading information on ovarian cancer on the internet (2.96, 0.79); and lack of adequate training in information literacy (2.94, 0.79). These factors have strong implications on early detection of ovarian cancer among female librarians and requires female librarians to improve their information literacy skills to be able to track relevant information related to ovarian cancer to tame the scourge.

Table 5. Mean and standard deviation responses of the challenges militating against the information literacy skills of female librarians with implications on early detection of ovarian cancer in the federal university libraries in South-East Nigeria (n = 159)

S/N	Item Descriptions	SA	A	D	SD	Mean	Std. Dev	Remark
1.	Lack of awareness of available information resources on ovarian cancer	75	69	15	0	3.38	0.65	Agreed
2.	Inability to effectively recognize the need for information on ovarian cancer	54	77	26	2	3.15	0.73	Agreed
3.	Inability to effectively evaluate information sources on ovarian cancer	61	82	16	0	3.28	0.64	Agreed
4.	Misleading information on ovarian cancer on the internet	40	79	34	6	2.96	0.79	Agreed
5.	Lack of adequate training in information literacy	40	74	40	5	2.94	0.79	Agreed
6.	Limited digital literacy to access information on ovarian cancer in the internet	40	101	16	2	3.13	0.62	Agreed
7.	Busy schedules and time constraints	53	63	31	11	3.00	0.90	Agreed
8.	Difficulty in understanding complex or technical medical terms related to ovarian cancer	50	67	31	11	2.98	0.89	Agreed
9.	Poor funding of libraries for training of librarians	61	62	30	6	3.12	0.85	Agreed
10.	Inability to effectively synthesize information on ovarian cancer	47	73	33	6	3.01	0.81	Agreed
	Garand Mean					***3.10***	***0.77***	***Agreed***
	Criterion Mean					***2.50***		

Source: Researcher's Field Survey, 2024

Research Objective 4: To examine the relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Data on Table 6 showed a low degree of relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria, as indicated by the correlation coefficient (r) = 0.240, which is positive and falls within the correlation coefficient limit of ± 0.20 - 0.40. The coefficient of determination (r^2 = 0.006) revealed that 6% of the variance observed in early detection of ovarian cancer in federal university libraries in South-East Nigeria, is accounted for by information literacy skills of the female librarians. This implies that information literacy skills of female librarians to a low extent relates to early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Table 6. PPMC coefficient of the relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria.

		ILSFLs	EDOVCA
ILSFLs	Pearson's Correlation Sig. (2tailed)	1	0.240
	N	159	159
EDOVCA	Pearson's Correlation Sig. (2tailed)	0.240	1
	R^2	0.006	
	N	**159**	**159**

ILSFLs = Information Literacy of Female Librarians
EDOVCA = Early Detection of Ovarian Cancer
N = No. of Observations
R = Correlation Coefficient
R^2 = Coefficient of Determination

Test of Hypothesis

$H0_1$: An Information literacy skill of female librarians has no significant relationship with early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Data in Table 7 above showed a p-value of 0.002 which is less than the alpha value of 0.05. Since the p-value of 0.002is less than the alpha value of 0.05, the null hypothesis of a no significant relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria, was rejected, and the alternative hypothesis accepted. Therefore, there is a positive significant relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria.

Table 7. Simple regression analysis of the relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria

Model	*Df*	*Sum of Square*	*Mean Square*	*F*	*Sig.*
Regression	1	73.676	73.676	9.540	0.002
Residual	156	1204.811	7.723		
Total	157	1278.487			

Discussion

The study revealed in Table 3 that the information literacy skills of female librarians for early detection of ovarian cancer include the ability to determine the value of information on ovarian cancer, ability to locate information on ovarian cancer, ability to identify relevant information on ovarian cancer, ability to access the information on ovarian cancer, and ability to effectively use information in detecting ovarian cancer. This indicated that the female librarians possess only a moderate level of information library skills. The finding partly agrees with Anyaoku et al. (2015), which found that librarians, including female librarians mostly possess information literacy skills to locate and identify information resources, even though they lack information technology skills like the ability to create web pages, use of reference managers and Boolean search techniques.

When appraising the level of awareness of the signs of ovarian cancer among female librarians in federal university libraries in South-East Nigeria, the study showed in Table 4 that the overall level of awareness of the signs of ovarian cancer among female librarians is very low, indicating that the female librarians are merely aware of bloating or swelling in the abdomen as a sign of ovarian cancer, severe back pain, abdominal pain or cramping, and frequent urination. This implies that majority of the female librarians are not aware of other signs of ovarian cancer such as persistent fatigue, persistent weight loss, pelvic pain or discomfort, persistent eating difficulty or feeling full quickly while eating, lymph node enlargement, and severe pain during intercourse. The finding aligns with previous studies conducted by Okunowo and Adaramoye (2018) which revealed that knowledge of ovarian cancer was extremely poor among women in Lagos, Nigeria; as well as Saki *et al.* (2022) who reported that public awareness of ovarian cancer was weak, and women were often diagnosed at late stages when treatment was difficult. The finding was not also far different from Li *et al.* (2024), which discovered that the awareness rate regarding cancer-related risk factors and early diagnosis of cancer were notably inadequate in Northeast China.

The study showed further revealed in Table 6 and 7, that there is a positive significant relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in South-East Nigeria. This typically implies that the higher the level of information literacy skills possessed by female librarians the better they are in early detection of ovarian cancer vis-à-vis knowledge of the signs and symptoms of the disease. The finding however partly differs with the study conducted Odegwo *et al.* (2021) on information needs

of female academics and resources utilization for early detection of ovarian cancer symptoms in Enugu, South-East Nigeria, which found that there is no significant difference between the mean ratings of the older and younger female academics in Enugu on their health information needs regarding early detection of ovarian cancer.

Finally, on the challenges militating against the information literacy skills of female librarians with implications on early detection of ovarian cancer in the federal university libraries in South-East Nigeria, the study discovered in Table 5 that lack of awareness of available information resources on ovarian cancer, inability to effectively evaluate information sources on ovarian cancer, inability to effectively recognize the need for information on ovarian cancer, limited digital literacy to access information on ovarian cancer in the internet, poor funding of libraries for training of librarians, inability to effectively synthesize information on ovarian cancer, etc., are the major challenges militating against the information literacy skills of female librarians with implications on early detection of ovarian cancer in the federal university libraries in South-East Nigeria. The study agrees with Onanuga *et al.* (2022), which identified irregular training, inadequate technological facilities, lack of access to the internet as some of the factors affecting the information literacy skills of librarians. It equally aligns with Anyaoku *et al.* (2015), which attributed poor information literacy skills of librarians to lack of institutional information literacy policy and support to drive information literacy programmes in university libraries.

Conclusion

An information literacy skill is essential in early detection of ovarian cancer among female librarians. This is because effective information literacy skills help in understanding the signs and symptoms as well as risk factors of ovarian cancer. In this study, it was discovered that information literacy skills possessed by female librarians for early detection of ovarian cancer include: ability to determine the value of information on ovarian cancer, ability to locate information on ovarian cancer, ability to identify relevant information on ovarian cancer, ability to access the information on ovarian cancer, etc. The study found that the overall level of awareness of the signs of ovarian cancer among female librarians is very low, though they are aware that bloating or swelling in the abdomen, severe back pain, abdominal pain or cramping, and frequent urination are signs of ovarian cancer. It identified that lack of awareness of available information resources on ovarian cancer, inability to effectively evaluate information sources on ovarian cancer, inability to effectively recognize the need for information on ovarian cancer, limited digital literacy to access information on ovarian cancer in the internet, poor funding of libraries for training of librarians, etc., as the major challenges militating against the information literacy skills of female librarians with implications on early detection of ovarian cancer in the federal university libraries. The study however concluded that there is a positive significant relationship between information literacy skills of female librarians and early detection of ovarian cancer in federal university libraries in

South-East Nigeria. This indicates that the higher the level of information literacy skills possessed by female librarians the better they are in early detection of ovarian cancer.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Management of federal universities should improve funding of federal university libraries to enable the libraries acquire and/or subscribe to information resources related to ovarian cancer in order to help in creating more awareness and knowledge of the disease among female members of the university communities.
2. Management of federal university libraries should make training of female librarians on information literacy skills a top priority to enhance their ability to evaluate and synthesize information resources, especially information resources on ovarian cancer since the disease is becoming a serious public health challenge.
3. Female librarians should pay more attention to changes in their health and subject themselves to regular medical checks to ascertain their ovarian cancer status.
4. Female librarians should develop more interest in acquiring and/or improving their information literacy skills, especially digital information literacy skills such as online search skills, Boolean operating skills, and truncation search skills in order to improve their level of awareness of health-related issues such as ovarian cancer.

Author Contributions

All authors contributed equally to the conceptualization of the article and writing of the original and subsequent drafts. Therefore, we declare that we participated in all aspects of this study, and we have both seen and approved the final version of the article for publication.

Data Availability Statement

Not applicable here.

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The authors in the course of this work avoided data fabrication, falsification, plagiarism, and misconduct.

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Conflict of interest

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References

Akwang, N. E., Udoh, I. U., & Tsenongu, C. T. (2024). Librarians' skills and contributions to digital citizenship education in academic institutions in Akwa Ibom Sate Nigeria. *OMANARP International Journal of Library and Information Science, 1*, 69-83.

American Cancer Society (2022). *Ovarian cancer risk factors*. https://www.cancer.org/cancer/ovarian-cancer/causes-risks-prevention/risk-factors.html

American Cancer Society (ACS, 2022). About ovarian cancer. https://www.cancer.org/content/dam/CRC/PDF/Public/8773.00.pdf

Anyaoku, E. N., Ezeani, C. N., & Osuigwe, N. E. (2015). Information literacy practices of librarians in universities in South East Nigeria. *International Journal of Library and Information Science*, *7*(5), 96-102.

Association of College & Research Libraries (ACRL) (2016). Framework for information literacy for higher education. http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/infolit/Framework_ILHE.pdf.

Brazier, Y. (2023). What is ovarian cancer? https://www.medicalnewstoday.com/articles/159675

Brue, C. (2019). Seven faces of information literacy: Towards inviting students into new experiences http://kennison.name/files/zopestore/uploads/libraries/bruce-7-faces.pdf.Stanzdnia14.08.2019

Chartered Institute of Library and Information Practitioners (CILIP) Information Literacy Group (2018). *Definition of information literacy*. Retrieved from: http://www.cilip.org.uk.

Chi, Y., Hui, V., Kunsak, H., Brusilovsky, P., Donovan, H., He, D., & Lee, Y. J. (2024). Women with ovarian cancer's information seeking and avoidance behaviours: An interview study. *JAMIA Open, 7*(1), ooae011. https://doi.org/10.1093/jamiaopen/ooae011

Cho, Y., Yang, R., Gong, Y., & Jiang, Y. (2023). Use of electronic communication with clinicians among cancer survivors: health information national trend survey in 2019 and 2020. *Telemedicine and e-Health*, *29*(6), 866-874.

Forster, R. (2017). Early detection of ovarian cancer. *European Radiology*. https://doi.org/10.1007/s00330-020-06937-z

Jayson, G. C., Kohn, E. C., Kitchener, H. C., & Ledermann, J. A. (2014). Ovarian cancer. *The Lancet*, *384*(9951), 1376-1388

Li, M., Ni, P., Zuo, T., Liu, Y. & Zhu, B. (2024). Cancer literacy differences of basic knowledge, prevention, early detection, treatment and recovery: A cross-sectionalstudy of urban and rural residents in Northeast China. *Frontiers Public Health*,12, 1367947. http://doi:10.3389/fpubh.2024.1367947

Lowe, R. A., Chirombo, F., Coogan, J. F., Dodd, A., Hutchinson, C., & Nagata, J. (2021). Electronic resources management in the time of COVID-19: Challenges and opportunities experienced by six academic libraries. *Journal of Electronic Resources Librarianship, 33*(3), 215-223

Mayo Clinic (2023). Ovarian cancer: Symptoms and causes. https://www.mayoclinic.org/diseases-conditions/ovarian-cancer/symptoms-causes/syc-20375941

Mpungose, C. B. (2023). Lecturers' reflections on use of Zoom video conferencing technology for e-learning at a South African university in the context of coronavirus. *African Identities, 21*(2), 266-282.

National Cancer Institute (NCI, 2023). Cancer of the ovary - Cancer statistical facts. *SEER*. https://seer.cancer.gov/stat-facts/html/ovary.html

Odegwo, V. O., Eze, J. U. & Oluchi, C. O. (2021). Information needs of female academics and resources utilization for early detection of ovarian cancer symptoms in Enugu, South-East Nigeria. *International Journal of Integrated Research in Education (IJIRE), 2*(3), 65-72. https://doi.org/10.36265.ijired.2020.020310

Okpala, A. E., & Ailakhu, U. V. (2020). *Information literacy*. https://nou.edu.ng/coursewarecontent/LIS%20101.pdf

Okunowo, A. A. & Adaramoye, V. O. (2018). Women's knowledge on ovarian cancer symptoms and risk factors in Nigeria: An institutional-based study. *Journal of Epidemiology and Global Health, 8*(1-2), 34 - 41. http://doi:10.2991/j.jegh.2018.07.002

Olukemi, O. O. (2019). Challenges of information literacy skills of undergraduate students in Ajayi Crowther University, Oyo State Nigeria. *ZarządzanieBibliotekąNr,* 1(11), 111-123.

Onanuga, A. O., Amuda, H. O. & Ilori, O. O. (2022). Assessment of Information Literacy Skills of Librarians in Selected Academic Libraries in South-Western, Nigeria. *Journal of Library, Science Education and Learning Technology (JOLSELT), 1*(2). https://www.researchgate.net/publication/363196761

Osiebe, P. O., Bassey, M. M. & Udoh, I. U. (2023). Descriptive study of information literacy skills and utilization of electronic information resources by undergraduate Computer students, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria. *Lokoja Journal of Information Science Research, 1(*2), 156-170.

Ovcharuk, O. V., Ivaniuk, I. V., Burov, O. Y., Marienko, M. V., Soroko, N. V., Gritsenchuk, O. O., & Kravchyna, O. Y. (2023). Digital resources for developing key competencies in Ukrainian education: teachers' experience and challenges. In *CEUR Workshop Proceedings*, 84-104.

Pasvanis, M., Hegarty, S., Russell, H., Peate, M. & Marino, J. L. (2023). Exploring the experiences and priorities of women with a diagnosis of ovarian cancer. *Supportive Care in Cancer, 31*, 432. https://doi.org/10.1007/s00520-023-07903-3

Saki, S., Ali, N. R., Saki, S. S., AlRabeea, Z. S., AlRemeithi, F. N., Carrick, F. R. &Abdulrahman, M. (2022). Barriers to healthcare seeking, beliefs about ovarian cancer and the role of socio-economic position: A cross-sectional multilevel study in Dubai, a multicultural society. *Journal of Public Health Research.* https://doi.org/10.4081/jphr.2021.2073

Seib, C., Harbeck, E., Porter-Steele, J., Anderson, D. & Chambers, S. (2019). Understanding cancer-related distress and supportive care needs in women with gynaecological cancer: A thematic analysis. *Maturitas,* 124, 145.

Udoh, I. U. & Okafor, V. N. (2022). Information literacy and digital literacy skills of 21st century Library and Information Science professionals. In: N. Singh & S. Singh (Eds), *Smart libraries and information management in digital environment, Vol. II.* B.R. Publishing Corporation.