Inequalities and Barriers to the Use of Health Care among Cancer Patients in the Pacific: A Systematic Review

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Introduction and aim: According to the WHO, the cancer threat is expected to rise by over 70% within the next two decades. To prevent cancer and reduce the consequences of cancer among patients it is essential to understand the barriers. Due to the close relation between the barriers, and also inequality on one side and lack of previous study among Pacific countries on the other side, this systematic review was conducted to understand inequalities and barriers to the use of health care among cancer patients in the Pacific.

Methods: This systematic review was conducted using five of the more frequently use databases and was based on the Cochrane Library Guidelines. Specific keywords were used to attain the relevant studies; with the search being focused on studies published between 1st January 2000 to 1st July 2017, published in English in the peer reviewed journals, and with full text was available. Two independent coders reviewed all studies and the essential information was chosen to develop the data extraction sheet. A descriptive statistical analysis was applied and the frequency and percentage of the studies was shown in tables.

Results: Overall, 38 studies met the inclusion criteria. American Pacific countries conducted a majority of the studies (57.89%) and 28.94% of studies were carried out among both male and female participants. Out of 38 studies, 33 used the quantitative method and 5 studies applied the qualitative. Socio-demographic, personal and subjective, and health facilities related factors were the barriers determined in this study. Lack of knowledge (11 studies) was considered the most common socio-demographic related barrier, while a cultural barrier (9 studies) was the more frequent barrier in personal and subjective. Limited cancer prevention services (11 studies) were determined as the most frequent barrier related to health facilities related factors.

Conclusion: The results of this study highlighted the role of the main barriers in health care among cancer patients in the Pacific. There are many barriers which can lead inequality among Pacific patients; to reduce inequality among cancer patients, health care professionals, policy makers and local ministries of health need to pay more attention to the barriers highlighted in this study.

Keywords: Cancer; Barriers; Inequality; Pacific

Introduction

The World Health Organization (WHO) defines cancer as the “uncontrolled growth and spread of cells”. However, it is also a generic term used to describe a large group of diseases that can affect almost any part of the human body [1]. Cancer develops when the body’s normal control mechanisms stop working and the body’s cells begin to mutate and multiply into tumor cells [2]. Cancer can affect anyone; young and old, rich and poor, men, women and children. Globally in 2015, cancer was found to be the cause of 8.8 million deaths, making it the second leading cause of death [3]. In addition to this in 2015, common cancers such as lung cancer, liver and colorectal cancer made up 3.22 million of the total cancer deaths toll [4]. According to the WHO, the cancer threat is expected to rise by over 70% within the next two decades [1]. Despite this, it was determined that only 1 in 5 low to middle income countries have the necessary data to derive cancer related policies, which can affect the prevention of cancer [5]. However, in countries such as the US, cancer statistics appear to be dropping with recorded 1.8% and 1.4% cancer rate decreases in males and females, respectively, from the year 2004 to 2013 [6].

Moreover, there is indeed an issue of cancer within the Pacific. When taken into consideration, it is evident that a majority of Pacific islands are still developing countries. Studies conducted found that Pacific island nations have alarming incidence to mortality ratios as a result of the cancer burden and lack of resources [7]. Astoundingly, the most common cancers in the Pacific were lung, stomach, colorectal, breast, and cervical cancers [8]. Additionally, in the year 2008, the Western Pacific had a total of 4.07 million new cases, with the gender distribution being 2.31 million males and 1.75 million females. As a result of this, there was a total of 2.6 million cancer related deaths that year within the Western Pacific region [9]. This shows an alarming rate of cancer in the Pacific which needs to be monitored. This high incidence within the Pacific has been attributed to barriers and inequalities in the available health care systems. Barriers are defined as...
obstacles that hinder progress, while inequalities refer to inconsistencies or unjust imbalances [10]. In terms of health care, these barriers and inequalities can limit an individual's access to certain services, making them a serious concern, especially for regions such as the Pacific. Hence, this systematic review set out to assess the available research on the possible barriers and inequalities that are preventing Pacific islanders from receiving adequate cancer related care.

Methodology

This systematic review was conducted based on the Cochrane Library Guidelines. The following databases were used to gather the relevant studies including: MEDLINE, Scopus EMBASE, WEB of Science Electronic Database, PubMed and Psych INFO, which had been used frequently in studies related to the topic of cancer.

To obtain the relevant articles, medical subheadings (MeSH) and other keywords were used including, Barriers, "Cancer" or "Tumor". The articles accepted into the study were based on a set of inclusion criteria which included articles published from January 1st 2000 to 1st July 2017, written in the English language, peer reviewed and available in full text. All study designs were included in the study.

The articles were review by two independent coders in order to reduce the bias when selecting studies. Three steps were conducted in order to attain the relevant articles.

The first step involved scanning the titles of the articles and all titles deemed irrelevant were excluded. The next step focused on reviewing the abstracts of the articles in which all irrelevant articles were removed. Once this was done, the next step was to analyze the full text further, removing any irrelevant articles. Thirty-three articles met the inclusion criteria. The bibliographies of the remaining articles were then searched to obtain any further relevant materials (Figure 1) [11,12].

Five studies were then added for a total of thirty-eight included studies. The full text of the articles were then printed and analyzed to create a data extraction sheet. The Data extraction sheet was developed using four main sections which were: study information, population, methodology and results (Table 1). Descriptive analysis was applied to the extraction sheet and the frequencies and percentages were recorded.

<table>
<thead>
<tr>
<th>Type</th>
<th>Factor</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-demographic</td>
<td>Low income</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Lack of Knowledge</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Communications and Language</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Loss of Support</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Geographical/transportation</td>
<td>4</td>
</tr>
<tr>
<td>Personal and Subjective factor</td>
<td>Religion</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Culture</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Ethnicity</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Insurance</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Time</td>
<td>7</td>
</tr>
<tr>
<td>Health facilities related factors</td>
<td>Limited cancer prevention services</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Incomplete treatment</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Lack of resources</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Limited Access to Treatment</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lack of cancer robust registry</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lack of health care dollar</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Limited access to health services</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Lack of reimbursement for cancer planning</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lack of screening</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Poor health infrastructure</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lack of skilled personnel</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Overloaded staff</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 1: Frequency of barriers reported in the studies.

Results

The general characteristics of the studies are shown in Table 2. The results showed that a majority of studies (36.8%) were conducted in 2000 to 2005. American Pacific countries conducted most of the studies (57.89%), followed by South Pacific countries (28.94%) and Asia Pacific countries (13.15%). While approximately half of the studies (42.10%) didn't mention the gender of people who participated in the studies, 28.94% of studies were carried out among both males and females.

Most of the studies didn't mention the age of participants. Among those that mentioned the gender of the participants, 26.31% were conducted among adults and older. One study was conducted among
older and one study focused on participants aged less than 18 years old.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000-2005</td>
<td>14</td>
<td>36.8</td>
</tr>
<tr>
<td>2006-2010</td>
<td>12</td>
<td>31.5</td>
</tr>
<tr>
<td>2011-2016</td>
<td>12</td>
<td>31.5</td>
</tr>
<tr>
<td>Region of conducting studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>5</td>
<td>13.15</td>
</tr>
<tr>
<td>South Pacific</td>
<td>11</td>
<td>28.94</td>
</tr>
<tr>
<td>American Pacific</td>
<td>22</td>
<td>57.89</td>
</tr>
<tr>
<td>Gender of participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>18.42</td>
</tr>
<tr>
<td>Male and female</td>
<td>11</td>
<td>28.94</td>
</tr>
<tr>
<td>Not stated</td>
<td>16</td>
<td>42.1</td>
</tr>
<tr>
<td>Age of participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children and adolescents</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Adolescent, adults and older</td>
<td>3</td>
<td>7.8</td>
</tr>
<tr>
<td>Adults and older</td>
<td>10</td>
<td>26.31</td>
</tr>
<tr>
<td>Older</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Not stated</td>
<td>23</td>
<td>60.52</td>
</tr>
</tbody>
</table>

Table 2: General characteristics of the studies.

The total number of participants who were engaged in these studies was 5,723,360. Table 3 shows the methodological characteristics of the studies. Out of 38 studies, 33 studies used the quantitative method and 5 studies applied the qualitative. A majority (65.79%) of the studies didn't mention the sampling methods, while 18.42% of the studies used purposive sampling. Most of the studies (47.46%) used questionnaire for collecting the data.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative</td>
<td>33</td>
<td>86.84</td>
</tr>
<tr>
<td>Qualitative</td>
<td>5</td>
<td>13.16</td>
</tr>
<tr>
<td>Sampling method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purposive</td>
<td>7</td>
<td>18.42</td>
</tr>
<tr>
<td>Snowball</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td>Random</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>Convenience</td>
<td>1</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Table 3: Methodological characteristics of the studies.

The common barriers of cancer perceived by the participants were categorized into three sections including socio-demographic, personal and subjective, and health facilities related factors. Lack of knowledge (11 studies) was considered the most common socio-demographic related barrier, followed by low income (7 studies), communication and language barriers (5 studies), geographical/transportation (4 studies), and lack of support (3 studies).

Cultural barriers (9 studies) were the most frequent barrier in personal and subjective factors. It was followed by lack of time (7 studies), religion and ethnicity (each 3 studies), insurance (2 studies) and gender (1 study). Health facilities related factor was determined as the most included barrier. Limited cancer prevention services (11 studies), limited access to health services (8 studies) and overloaded staff (7 studies) were more frequent barriers; while limited access to treatment, lack of cancer robust registry, lack of health care dollar, and poor health infrastructure (each 2 studies) were less frequent barriers in this section. Incomplete treatment, lack of resources, and lack of screening (each 4 studies) were also highlighted as barriers related to health facilities.

**Discussion**

Through the duration of this study it can be stated that there is indeed evidence of barriers and inequalities in terms of cancer related health services within the Pacific. The barriers identified in this study were placed into three major categories including, socio-demographic, personal/subjective and health facilities related barriers. Out of the thirty-eight articles included in this study, health facilities related factors accounted for the majority of the barriers, with limited cancer prevention services being the most common. These preventative services range from screening to vaccinations, such as the HPV vaccine, and in a study conducted by Garland S were found to be minimal [13]. The study then went on to suggest that preventative services such as these were the key in the prevention or reduction of the cancer burden in the Pacific.

The next health service related barrier identified in the study was the lack of access by patients to cancer services. In a study carried out by Steven Coughlin to assess factors related to health care access, it was found that rural areas had lower cancer checks due to the presence of fewer clinics than in urban areas [14]. In addition to this, there is more evidence provided by Dr. Elizabeth Ward where her team listed geography as a structural barrier towards cancer treatment and prevention services [15]. This shows that patients are not willing to travel to services that are out of the way, reducing the likelihood of early detection or preventative action. Hence, access is indeed a barrier towards cancer services within the Pacific.

Moreover, throughout this study a common finding pointed towards a lack of skilled personnel within the Pacific region. The presence of skilled and capable personnel is favorable to the running of proper
cancer services and the absence of such personnel can be considered a major barrier to cancer care. This lack of personnel can be attributed to many different reasons, however, two major ones appear to be a lack of resources and high worker migration rates [16]. According to a survey by Richard Brown, it was found that the migration of medical professionals from the Pacific is indeed an issue within countries such as Fiji, Tonga and Samoa [17]. Reported in his findings, Brown attributed the high migration rates to the large wage differences between Pacific countries and their more developed counterparts, leading medical professionals to pursue more lucrative career opportunities [18]. This factors in to the lack of resources highlighted in this systematic review as the government’s lack the funding and capabilities to retain these workers, reducing the availability of health services. In the absence of trained personnel, services such as diagnosis and treatment are limited and professionals from outside countries need to be brought in whose services cannot be sustained due to a lack of resources. Hence, worker retention is necessary to improve cancer related services in the Pacific.

Additionally, the study found that socio-demographic barriers were also evident in the Pacific, with the major barrier being a lack of knowledge. According to studies by Peek and McFarland, cancer knowledge is a matter of grave concern that needs to be addressed in the Pacific people [19,20]. In the study set out by McFarland, it was found through a survey that women were less likely to carry out preventative action for cervical cancer due to a lack of knowledge on the available services, and in certain cases, the risks of contracting cancer [20]. This lack of knowledge reduces the patient’s chances of early detection and increases the risk of permanent damage or fatality. A similar study conducted a survey indicating a lack of knowledge regarding cancer among Pacific and Vietnamese women [21]. The studies all went on to explain that the barrier of knowledge needs to be addressed and that cancer education needs to be strengthened, especially in regions such as the Pacific.

The next major barriers identified through this study were that of income and insurance. In a study conducted by Thomas Smith, it was found that the direct costs for cancer services are constantly rising and in the US alone is expected to reach $173 billion dollars by the year 2020 [22]. Similarly, Linda Carlson conducted a literature review to assess the cost effectiveness of psychosocial needs of cancer patients due to the high costs of cancer related services. The study concluded that more cost evaluations need to be carried out, especially in terms of service evaluations, in order to highlight the high costs of care [23]. These high costs are concerning due to most Pacific countries falling into the low to middle income country categories. The Journal of Paediatric Hematology found that the burden of cancer treatment costs were centered on out of pocket payments, such as travel, communication and accommodation [24].

A lack of insurance is also considered a barrier due to the high costs of cancer services rendering out of pocket payments unfeasible. In the US, a study was conducted to discover an association between insurance and cancer care utilization. The study highlighted that insurance was indeed a barrier towards cancer care, and if not addressed will prevent access to prevention detection and treatment services among the public [25]. In addition to this, Helen investigated the willingness of patients to participate in clinical trials based off of insurance information and found that individuals without insurance were less likely to enroll in treatment trials [26]. This shows that insurance plays an important role in an individual’s decision to accept treatment or use cancer services, with the absence of insurance acting as a barrier.

The last major categories of barriers found in this study were personal and subjective barriers. In terms of personal barriers, the largest one was that of culture. In the Pacific, it is a known fact that culture plays an important role in the lives of the people and even has influence over medical decisions. Despite this, Gulshan Karbani, set out to investigate the relationship between culture and knowledge about breast cancer. Karbani found that cancer in Asian Pacific individuals brought about stigma and had direct impact on marital issues and in some cases led to marital breakdowns [27]. Additionally, certain cultures move individuals away from Western medicines and focus more on traditional and herbal medicines. This is dangerous as herbal medicines are often untested and may not necessarily be of benefit to the patient [28]. Other researchers such as Hee Yun Lee, who studied culture as a barrier to cancer services, found that the only way to target culture oriented populations was to redesign the service with the target of culture in mind [29]. An additionally important aspect of this is native language, as the Pacific is home to a wide variety of unique languages. This is further backed in a study where the researchers discovered that language needed to be considered when improving patient experience in relation to cancer care [30]. Hence, culture is indeed of importance towards cancer services and if not monitored can become a barrier.

Aside from the barriers mentioned above, the study identified a few minor barriers which included gender, ethnicity, family support, and poor health infrastructure. These barriers are suspected to play vital roles in cancer health services; however, there was little evidence of it in the reviewed literature.

Furthermore, the study had set out to identify inequalities involving cancer care within the Pacific. Despite the majority of the studied literature focusing on barriers towards health care, inequalities were indeed evident. The major inequality identified appears to be based off of ethnicity. In a study conducted by Dr. Mona Jeffries in New Zealand to link ethnic inequalities and cancer survival, found that the Maori 5 year survival rate was lowest when compared to other non-Pacific people [31]. In addition to this, the study also found that other Pacific ethnicities also fell behind the non-Pacific population in terms of cancer survival. Similarly, a study by Nancy Krieger (2002) found that despite there being little difference between the incidence rates of breast cancer between African American women and white American women, there appeared to be a higher mortality rate among the African American women [32]. This may be due to reluctance to seek medical attention or cultural aspects. However, a major recommendation by the reviewed studies is that further research needs to be conducted in regard to the disparities.

Overall, it can be said that barriers and inequalities will always be present in terms of cancer services. However, as of late, certain countries are making strides to reduce these barriers and inequalities, meaning that Pacific nations need to follow in their footsteps and work towards better healthcare. A major example of this is the United States (US) who introduced Medicare into the country, which is a form of insurance [33]. This works by subsidizing certain medical costs and reducing the burden of the low income earning members of the population, allowing them equal access to proper health care. Other initiatives similar to this include the heavily subsidized medical care in Fiji, which covers basic services such as check-ups and clinics, making them free to the public [34]. The downside, however, is that this does not extend to the more costly services required for cancer patients, but
may aid in early detection [35]. Hence, more research needs to be conducted in order to determine the necessary methods of removing these barriers and inequalities in the Pacific (Table 4).

<table>
<thead>
<tr>
<th>No.</th>
<th>Study Information</th>
<th>Population</th>
<th>Methodology</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Untalan et al. [36] Year: 2004 Type of Study: Descriptive study (cross-sectional) Country: Hawai’i</td>
<td>Population: Total 195 No. of Male: 116 No. of Female: 79 Age group: Ranges from 0-19 yrs.</td>
<td>Place: Hospital Sampling method: Random Data collection tools: Not stated</td>
<td>Barriers: -Paediatric cancer patients referred from the Pacific Islands for treatment in Hawai’i had a higher relative risk of death, of not receiving treatment in a timely manner -Not completing treatment -Lost to follow-up more than paediatric cancer patients that were residents of Hawai’i -Financial difficulties -Gaps in communication with providers due to language and cultural differences -Loss of social support</td>
</tr>
<tr>
<td>2</td>
<td>Ou et al. [37] Year: 2004 Type of Study: Descriptive study Country: Kiribati</td>
<td>Population: 237 Cases No. of Male: 93 No. of Female: 144 Age Group : 41-50 yrs.</td>
<td>Place: Hospital Sampling method: Not stated Data collection tools: Interview</td>
<td>Barriers: -The lack of a robust cancer data tracking and surveillance system -Lack of resources to institute a technologically and medically sustainable cancer control system was apparent</td>
</tr>
<tr>
<td>3</td>
<td>Ou et al. [38] Year: 2004 Types of Study: Descriptive study Country: Nauru</td>
<td>Population : 124 No. of Male : 46 No. of Female: 78 Age Group : Ranges from 10-86 yrs.</td>
<td>Place: Hospital Sampling method: Not stated Data collection tools: Not stated</td>
<td>Barriers: -Incomplete ascertainment of cancer cases because of historical events -Lack of robust cancer registry -Systematic cancer surveillance system</td>
</tr>
<tr>
<td>7</td>
<td>Foliaki et al. [42] Year: 2014 Type of Study: Cross-Sectional study Country: Fiji</td>
<td>Population: 1,261 cases No. Male: No. Female: 1,261 Age Group: Age ranges 16-64 yrs.</td>
<td>Place: Health sub district Sampling Method: Not stated Data collection tools: Survey</td>
<td>Barriers: Barriers: -Accessibility to health facilities -Difficulties in following up screening of positive women in such a high risk population -Overloaded with work, especially nurses -Low knowledge level of the population</td>
</tr>
</tbody>
</table>
| 8 | Asia-Pacific Working Party on Prevention of Hepatocellular Carcinoma [43]  
   Year: 2010  
   Type of Study: Descriptive  
   Country: Asia Pacific  
   | Population: Not stated  
   No. Male: Not stated  
   No. Female: Not stated  
   Age Group: Not stated  
   | Place: Not stated  
   Sampling Method: Not stated  
   Data collection tools: Not stated  
   | Barriers:  
   - Widespread application of HCC surveillance in Asia-Pacific countries depends on economic factors and health-care priorities  

| 9 | Ka‘anöi et al. [44]  
   Year: 2004  
   Type of Study: Cross-Sectional (Survey)  
   Country: Hawai‘i  
   | Population: 454 Internist, family and general practitioners, and OB/GYN specialists.  
   No. Male: Not stated  
   No. Female: Not stated  
   Age Group: Not stated  
   | Place: Health care  
   Sampling Method: Not stated  
   Data collection tools: Questionnaires  
   | Barriers:  
   - Lack of awareness  
   - Limited support staff  
   - Time constraints  
   - Not aware of ongoing prevention trials  

| 10 | Tajima and Moore [45]  
   Year: 2002  
   Type of Study: Descriptive  
   Country: Asia Pacific  
   | Population: Not stated  
   No. Male: Not stated  
   No. Female: Not stated  
   Age Group: Not stated  
   | Place: Not stated  
   Sampling Method: Not stated  
   Data collection tools: Not stated  
   | Barriers:  
   - Culture  

| 11 | Juon et al. [46]  
   Year: 2008  
   Type of Study: Descriptive  
   Country: Asia Pacific persons in the United States  
   | Population: 1,775  
   No. Male: 619  
   No. Female: Age Group: 20-49 yrs.  
   | Place: Church and school  
   Sampling Method: Not stated  
   Data collection tools: Not stated  
   | Barriers:  
   - Religious service  
   - Lack of time for screening administrator to finish recording data while assessing test  
   - Low computer skills/knowledge  
   - Poor health facilities  

| 12 | Garland et al. [13]  
   Year: 2008  
   Type of study: Case Studies  
   Country: Asia Pacific Regions  
   | Population: 3,332,258  
   No. Male: Not Stated  
   No. Female: Not Stated  
   Age Group: Not stated  
   | Place: Not Stated  
   Sampling Method: Not Stated  
   Data collection tools: Not Stated  
   | Barriers:  
   - Gender  

| 13 | Tsark [47]  
   Year: 2007  
   Type of Study: Descriptive  
   Country: US-associated Pacific Island Countries  
   | Population: Not stated  
   No. Male: Not stated  
   No. Female: Not stated  
   Age Group: Not stated  
   | Place: Community (4 states)  
   Sampling Method: Not stated  
   Data collection tools: Survey  
   | Barriers:  
   - Limited ability to measure cancer burden  
   - A lack of programs, equipment, and trained personnel to detect and treat cancer  
   - Geographical barriers which is time consuming and too costly  
   - Limited local dollars allocated to cancer education and awareness  

| 14 | Wong and Kawamoto [48]  
   Year: 2010  
   Type of Study: Cross-sectional study (Survey)  
   Country: Hawai‘i  
   | Population: 10  
   No. Male: Not stated  
   No. Female: 10  
   Age Group: 28-69  
   | Place: Not stated  
   Sampling Method: Not stated  
   Data collection tools: Not stated  
   | Barriers:  
   - There is limited knowledge about cervical cancer  
   - Lack of health information in general  
   - Fear, privacy concerns  
   - Lack of awareness and cultural beliefs  

| 15 | Hubbell et al. [49]  
   Year: 2004  
   Type of Study: Descriptive study  
   Country: United States  
   | Population: 797,670  
   No. Male: Not stated  
   No. Female: Not stated  
   Age Group: Not stated  
   | Place: Not stated  
   Sampling Method: Not stated  
   Data collection tools: Not stated  
   | Barriers:  
   - Insurance  
   - Poverty  
   - Unemployment  

| 16 | Singer et al. [50]  
   Year: 2000  
   Type of Study: Cross-sectional  
   Country: United States  
   | Population: 66,952  
   No. Male: 66,952  
   No. Female: Age Group: above 18 yrs  
   | Place: Not stated  
   Sampling Method: Not stated  
   Data collection tools: Not stated  
   | Barriers:  
   - Lack of access to or use of primary care also affects the screening rate  
   - Lack of insurance  
   - Low income and lack of a usual source of care  

| 17 | Kagawa-Singer et al. [51]  
   Year: 2006  
   Type of Study: Qualitative (Focus Group)  
   Country: United States  
   | Population: 173  
   No. Male: 84  
   No. Female: 89  
   Age Group: Not stated  
   | Place: Not stated  
   Sampling Method: Not stated  
   Data collection tools: not stated  
   | Barriers:  
   - Barriers to screening  
   - Lack of health insurance (both Medicaid and low cost insurance products)  
   - Language and communication barriers  
   - Lack of transportation to and from screening services  

<table>
<thead>
<tr>
<th>Citation</th>
<th>Year</th>
<th>Type of Study</th>
<th>Country</th>
<th>Population</th>
<th>No. Male</th>
<th>No. Female</th>
<th>Age Group</th>
<th>Place</th>
<th>Sampling Method</th>
<th>Data collection tools</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kagawa-Singer et al. [51]</td>
<td>2006</td>
<td>Cross-sectional (Qualitative)</td>
<td>United States</td>
<td>Population: 6,048 Asian and Pacific Island Women</td>
<td>No. Male: Not stated</td>
<td>No. Female: 6,048</td>
<td>Age Group: 50 yrs +</td>
<td>Place: Not stated</td>
<td>Sampling Method: Not stated</td>
<td>Data collection tools: Not stated</td>
<td>Lack of time off from work; Lack of child care; Long waits at doctors’ offices; Lack of ethnic-specific female doctors; Cultural modesty, especially when screened by male doctors;</td>
</tr>
<tr>
<td>Lee et al. [52]</td>
<td>2011</td>
<td>Descriptive</td>
<td>United States</td>
<td>Population: 52,491</td>
<td>No. Male: Not stated</td>
<td>No. Female: Not stated</td>
<td>Age Group: 50 yrs +</td>
<td>Place: Not stated</td>
<td>Sampling Method: Not stated</td>
<td>Data collection tools: Not stated</td>
<td>Barriers: Health insurance; Those patients with no health insurance find it difficult to acquire treatment; Access to health care; Socio-economic status; Cultural beliefs; Cancer screening literacy; Geographical location;</td>
</tr>
<tr>
<td>Tanjasiri and Tran [53]</td>
<td>2008</td>
<td>Descriptive</td>
<td>United States</td>
<td>Population: Not stated</td>
<td>No. Male: Not stated</td>
<td>No. Female: Not stated</td>
<td>Age Group: Not stated</td>
<td>Place: Not stated</td>
<td>Sampling Method: Not stated</td>
<td>Data collection tools: Not stated</td>
<td>Barriers: Financial resources - 7/8 states did not have enough funding to develop and implement programs; Lack of staff skills in specific areas; Difficulty in recruiting appropriate staff to run programs; Unavailability of volunteers; Cultural issues;</td>
</tr>
<tr>
<td>Robinson et al. [54]</td>
<td>2013</td>
<td>Descriptive</td>
<td>United States</td>
<td>Population: Not stated</td>
<td>No. Male: Not stated</td>
<td>No. Female: Not stated</td>
<td>Age Group: Not stated</td>
<td>Place: Not stated</td>
<td>Sampling Method: Not stated</td>
<td>Data collection tools: Not stated</td>
<td>Barriers: Lack of full coverage of preventive health services; Limited survivorship care training for health care providers; Lack of reimbursement for cancer care planning;</td>
</tr>
<tr>
<td>Steele et al. [55]</td>
<td>2013</td>
<td>Qualitative Study (Cross-sectional) (Surveillance)</td>
<td>United States</td>
<td>Population: 294,843</td>
<td>No. Men: 4,500</td>
<td>No. Female: 4,167</td>
<td>Age Group: 60 +</td>
<td>Place: Not Stated</td>
<td>Sampling Method: Not Stated</td>
<td>Data collection tools: Not Stated</td>
<td>Barriers: Lack of full coverage of preventive health services; Limited survivorship care training for health care providers; Lack of reimbursement for cancer care planning; Total number of API cases was small;</td>
</tr>
<tr>
<td>Wu et al. [57]</td>
<td>2010</td>
<td>Cohort Study</td>
<td>American Samoa</td>
<td>Total: 55</td>
<td>Male: 55</td>
<td>Female: 55</td>
<td>Age: 19 and older</td>
<td>Place: Communities</td>
<td>Sampling Method: Purposive</td>
<td>Data collection tools: Focus group</td>
<td>Barriers: Male doctors (female feel uncomfortable); Limited services (recommended treatment for early breast cancer lumpectomy and radiation but currently only treatment modality available is mastectomy; Long waits;</td>
</tr>
<tr>
<td>Katz et al. [58]</td>
<td></td>
<td></td>
<td></td>
<td>Total: Not stated</td>
<td></td>
<td></td>
<td></td>
<td>Place: Not stated</td>
<td></td>
<td></td>
<td>Barriers:</td>
</tr>
<tr>
<td>Year</td>
<td>Country</td>
<td>Total</td>
<td>Male</td>
<td>Female</td>
<td>Age</td>
<td>Sampling Method</td>
<td>Data collection tools</td>
<td>Place</td>
<td>Barriers</td>
<td></td>
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<tr>
<td>26</td>
<td>Ruidas et al. [59]</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Place: Community</td>
<td>Data collection tools: Not Stated</td>
<td>Access to treatment</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>27</td>
<td>Wong et al. [60]</td>
<td>122</td>
<td>Male: 54</td>
<td>Female: 68</td>
<td>Age: Not stated</td>
<td>Place: Health care and community</td>
<td>Data collection tools: Convenience and random</td>
<td>Barriers: Limited cancer treatment (patients referring to other places for treatment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Kroon et al. [61]</td>
<td>65</td>
<td>Male: 29</td>
<td>Female: 36</td>
<td>Age: Not stated</td>
<td>Place: Community</td>
<td>Data collection tools: Not stated</td>
<td>Barriers: Limited services (patient seeks treatments outside of the country)</td>
<td></td>
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<tr>
<td>29</td>
<td>Pobutsky et al. [62]</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Place: Communities</td>
<td>Data collection tools: Land based telephone survey</td>
<td>Barriers: Access to health care services</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>30</td>
<td>Townsend et al. [63]</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Not stated</td>
<td>Place: Community and school</td>
<td>Data collection tools: Survey</td>
<td>Barriers: Inadequate technologies resources Cost of services</td>
<td></td>
<td></td>
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<tr>
<td>31</td>
<td>Aitaoto et al. [64]</td>
<td>567</td>
<td>Male: Not stated</td>
<td>Female: Not stated</td>
<td>Age: 18-75</td>
<td>Place: Community</td>
<td>Data collection tools: Screening test</td>
<td>Barriers: Access to health services (88%)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>32</td>
<td>Tsark [47]</td>
<td>33</td>
<td>Male: Not stated</td>
<td>Female: Not stated</td>
<td>Age: Not stated</td>
<td>Place: Health care, Community, hospital and school</td>
<td>Data collection tools: Purposive</td>
<td>Barriers: Limited ability to measure cancer burden and lack of programs Limited equipment, and trained personnel to detect and treat cancer Most cancers are diagnosed in late stages when survival is compromised and care is most costly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Aitaoto et al. [65]</td>
<td>298,460</td>
<td>Male: Not stated</td>
<td>Female: Not stated</td>
<td>Age: Not stated</td>
<td>Place: Community</td>
<td>Data collection tools: Focus group and in-depth interview</td>
<td>Barriers: Limited understanding of breast and cervical cancer Competing priorities Lack of transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Nagelhout et al. [66]</td>
<td>197</td>
<td>Male: 74</td>
<td>Female: 116</td>
<td>Age: Not stated</td>
<td>Place: Community</td>
<td>Data collection tools: Purposive</td>
<td>Barriers: Fear Time Lack of knowledge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Dang et al. [67]</td>
<td>1,708</td>
<td>Male: 1,708</td>
<td>Female: 1,708</td>
<td>Age: Not stated</td>
<td>Place: Community</td>
<td>Data collection tools: Purposive</td>
<td>Barriers: Education Employment Resources Language</td>
<td></td>
<td></td>
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<tr>
<td>36</td>
<td>Singer et al. [50]</td>
<td>66,592</td>
<td>Male: 66,592</td>
<td>Female: 66,592</td>
<td>Age: Not stated</td>
<td>Place: Community</td>
<td>Data collection tools: Randomized</td>
<td>Barriers: Poverty Education Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Data extraction sheet.

<table>
<thead>
<tr>
<th>Year</th>
<th>Study: Descriptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Male: Not stated</td>
</tr>
<tr>
<td>Country: United States</td>
<td>Female: Not stated</td>
</tr>
<tr>
<td>Age: Not stated</td>
<td>Sampling Method: Purposive</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Study: Descriptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Male: 20</td>
</tr>
<tr>
<td>Country: Australia</td>
<td>Female: 44</td>
</tr>
<tr>
<td>Age: Not stated</td>
<td>Data collection tools: Surveys, Focus Groups, Interviews</td>
</tr>
</tbody>
</table>

Table 4: Data extraction sheet.

Conclusion

At the end of this study the available literature was able to provide a glimpse into the barriers and inequalities of cancer health care within the Pacific. A total of thirty-eight articles were included within the study, with 33 quantitative and 5 qualitative studies. Despite this, only sixteen articles focused on Pacific island countries, while 22 focused on Pacific islanders living abroad in countries such as the US. This shows that there is indeed a need for more research within the Pacific islands to tackle the issue of barriers and inequalities to cancer related health care in the Pacific.

The team attempted to strengthen the study by including articles dating back to the year 2000 to the year 2017; however, there were some limitations. The first limitation was the rejection of grey literature and the second was the omission of literature not in the English language.

References
