

**Barriers and facilitators of utilising cervical cancer screening
in the Papua New Guinea: A narrative review**

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Abstract

Background: Melanesian countries in the Pacific have the highest incidence of cervical cancer worldwide. In Papua New Guinea (PNG), 1,500 cervical cancer deaths of women are reported each year, and the country has the highest estimated cervical cancer burden in the Pacific. Although primary and secondary cervical cancer screening (CCS) methods are available, women's participation remains low.

Aim: This narrative review aims to identify barriers and facilitators of women's utilisation of CCS in PNG and the wider Pacific.

Method: A narrative review of the literature from the Pacific was conducted, and data was synthesised from qualitative, quantitative, and mixed method studies. Five data bases were electronically searched for articles published between 1990 and 2020. Given the paucity of literature in PNG and the Pacific pertaining the topic, the review included bibliographies of grey materials and key journal articles. Twenty-three journal articles and government reports that focused on barriers and facilitators of CCS uptake were included in the review.

Results: The literature identified multifaceted barriers and facilitators of CCS uptake by women in PNG and the wider Pacific. Factors that were barriers to CCS uptake included: (i) lack of awareness and understanding; (ii) cultural-religious taboos and practices; (iii) Concerns about indirect costs of CCS uptake and poor socio-economic status; (iv) suboptimal healthcare delivery; and (v) geographical impediments limiting access to CCS services.

Facilitators of CCS were multifaceted and interrelated, including: (i) culturally centred interventions for CCS; (ii) affordability of and accessibility to CCS services; and (iii) health insurance protection. Culturally centred approaches coupled with affordable and accessible cervical screening methods were found to have the potential to enhance cervical screening uptake.

Conclusion: While cervical screening is the initial step in detecting human papillomavirus (HPV) in women, the findings in this review highlight the urgent need to address factors beyond individual knowledge and attitude influencing Pacific women's CCS behaviour. Future studies should assess the actual availability, accessibility, affordability, and acceptability of CCS methods through a wider understanding of contextual factors. This study is relevant to policy makers, international development

partners and non-government organisations in guiding them in working collaboratively to address the barriers while also understanding the contextual influences on CCS uptake by Pacific women.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signature

Date

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Chapter 1: Overview of Cervical Cancer Trends and Cervical Cancer Screening Challenges Globally and in the Pacific

1.1 Introduction

Cervical cancer is a global issue and a public health concern. Cervical cancer disproportionately affects women in the low- and middle-income countries, with over 85% incidence and 87% mortality (Paluku et al., 2019). In 2018, cervical cancer was reported as the fourth most common cause of death in women, with an estimated 570,000 new cases and 311,000 deaths worldwide, ranking after breast cancer (2.1 million cases), colorectal (0.8 million) and lung cancer (0.7 million) (Arbyn et al., 2020). Studies have shown that the Pacific region has a high burden of cervical cancer and Melanesian countries are ranked highest in incidence worldwide (Garland et al., 2012).

An epidemiological study in Australia, Asia, and the Pacific discovered that cervical cancer was common among women in the age range of 18 to 55 years in Papua New Guinea (PNG), with age standardised ratios of incidence and mortality of 40.4% and 22.6 % per 100,000 respectively (Garland et al., 2008). PNG has among the highest estimated burdens of cervical cancer globally, with an incidence 6.3 times that of Australia and New Zealand (age standardised rates 34.5 vs. 5.5/100,000), and mortality 13.5 times greater (21.7 vs. 1.6/100,000) (Toliman et al., 2016). Every year, 1,500 deaths occur in PNG as a result of cervical cancer (Bray et al., 2018).

The region of the Pacific Island Countries and Territories (PICTs) consist of 22 countries and territories divided along old colonial boundaries that are highly diverse in socio-economic development, geography, culture, history, language, and population (Sarfati et al., 2019). Regardless of the differences, the PICTs share common challenges in terms of fragile economies, geographical barriers, and inadequately resourced health services that constrain health service delivery (Sarfati et al., 2019). Given the challenges faced by the PICTs, most of the support, including reproductive health services, comes from international developmental partners (Toliman et al., 2018). Nevertheless, studies have shown that Melanesian countries in the Pacific region have a high incidence of cervical cancer associated with various barriers to screening uptake. For example, a retrospective study that reviewed data on cervical cancer trends among Fijian women from 2000 to 2010 showed that only 10% of the women have undergone a Pap smear

test although cervical cancer screening (CCS) was introduced in 1967 (Vodonaivalu & Bullen, 2013). Timely access to screening was reported as the main barrier to screening uptake for the Fijian women (Vodonaivalu & Bullen, 2013).

By contrast, in PNG, Pap smear-based screening has been offered for 15 years since its inception in 1999. Funded by a non-government Australian charity organisation, it achieved screening of 4% of the target population and was discontinued in 2009 due to poor performance (Kelly-Hanku, Newland, Aggleton, Ase, Aeno et al., 2019). Consequently, the ministerial task force in PNG nominated the visual inspection of the cervix with acetic acid (VIA) testing as the low-cost method which is currently provided to women at strategic health settings (Vallely et al., 2018). However, there are ongoing challenges impeding women in PNG from taking cervical cancer prevention measures. To understand and address some of these barriers, two studies have been conducted in PNG.

The first study found that knowledge of the biomedical understanding of cervical cancer was limited in some communities in PNG (Kelly-Hanku et al., 2018). This study recommended that future research is needed to investigate on how health professionals come to diagnose cervical cancer in women and share that message with the women and her family members. The second study found that the communication provided by health professionals pertaining to the link between the human papillomavirus (HPV) and cervical cancer development was unclear and that might have hindered women in seeking preventative measures for cervical cancer (Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019). Therefore, the latter study stated that future research should focus on how health promotion approaches are designed and delivered to communities.

For the other PICTs, there is limited data capturing cervical cancer trends and barriers to screening; nevertheless, extrapolated data from regional estimates shows a significant cervical cancer burden in the Pacific (Obel et al., 2014). From the global perspective, studies have shown that a lack of knowledge and women's attitudes are common barriers associated with the cervical cancer burden worldwide (Ghosh et al., 2020; Kasa et al., 2018; Thapa et al., 2018). Nonetheless, little has been done to investigate the existing barriers to and facilitators of the utilisation of CCS in PNG and the wider Pacific.

1.2 Study aim and dissertation structure

The aim of this review is to discuss barriers to and facilitators of the utilisation of CCS in PNG and the wider Pacific. This dissertation is comprised of five main chapters. The present chapter, Chapter 1, has focused on cervical cancer trends globally, and in the Pacific, as well as highlighting the challenges linked to CCS uptake. Chapter 2 provides background on cervical cancer epidemiology, risk factors, types of CCS methods and a global overview of the literature pertaining to the barriers to and facilitators of CCS uptake. Chapter 3 outlines the search strategy that was employed, and the process of data analysis and synthesis. Chapter 4 presents the main findings of the narrative review pertaining to the barriers to and facilitators of CCS uptake in the Pacific. Chapter 5 discusses the main findings of the review. Subsequently, the gaps and recommendations highlighted in the review are discussed, strength and limitations are acknowledged, and conclusions and recommendations are presented.

Chapter 2: Background of Cervical Cancer Risk Factors, Cervical Cancer Screening Methods and Global Review of the Barriers to and Facilitators of Cervical Cancer Screening Uptake

2.1 Introduction

Cervical cancer is one of the most common malignant diseases affecting women globally. CCS is one of the primary prevention methods of controlling the cervical cancer burden worldwide. Nevertheless, cervical screening remains a challenge for women in developing countries including PNG and the wider Pacific. Therefore, the purpose of this chapter is to look closely into the epidemiology of cervical cancer, the risk factors of cervical cancer and the types of screening methods available globally. This chapter also discusses the barriers to and facilitators of utilising CCS from the global perspective to provide context for the current study.

2.2 Cervical cancer epidemiology

Cervical cancer was first assumed to develop from a non-invasive (unable to spread) to an invasive (able to spread) cancer in the 1960s, and was called cervical intraepithelial neoplasm (CIN). Therefore, it was classified in stages 1, 2 and 3 based on the transformation of the cells (Bekkers et al., 2004). Cervical cancer is also known as the “cancer of the cervix, which is the lower part of the uterus or womb connecting the vagina” (Aamod Dhoj et al., 2018, p. 319). The HPV is identified as the core etiological pathogen in the development of cervical cancer in women (Wentzensen et al., 2009). A study conducted by the International Agency for Research on Cancer that pooled data from nine different high-risk countries with 1,918 histologically confirmed cases of squamous cervical cancer cell and 1,928 control women found over 80 HPV genotypes in which 40 HPV types could infect the genital tract (Munoz et al., 2003). Among these HPV types, HPV-16 and HPV-18 subtypes were seen to be highly prevalent genotypes responsible for cervical cancer development (Campos et al., 2019; Hooi et al., 2018). Another multicentre-case control study of 144 cases and 288 matched controls found that HPV genotypes 16 and 18 were detected in 92.5% of cases and 13.9% of controls respectively (Berraho et al., 2017). The sexual active behaviour of an individual

increases the risks of HPV-16 and HPV-18 infection (Itarat et al., 2019). A closer look at the risk factors associated with cervical cancer development is presented below.

2.3 Risk factors of cervical cancer

2.3.1 Multiple sexual partners and early sexual debut

Many studies have revealed the leading risk factors of cervical cancer, its precursors, and the role of certain markers of sexual activity such as having multiple sexual partners, age at first intercourse and the sexual behaviour of the women's partners (Biswas et al., 1997; Castellsagué, 2008; Haile et al., 2018; Teame et al., 2018). For instance, pooled analysis of case control studies revealed that there were high chances of developing cervical carcinoma when women engaged in early age sexual debut (Biswas et al., 1997; Louie et al., 2009). Additionally, having sexual contact with men and women who are at high risk (those with multiple sexual partners) further increases the risk of developing cervical cancer (Castellsagué, 2008). In a hospital-based case control study in Ethiopia, 114 cases and 229 controls were engaged in a study to determine the factors associated with cervical cancer development (Teame et al., 2018). Women with a previous history of sexually transmitted diseases or multiple partners, and women with husbands who had more than two lifetime sexual partners had higher chances of developing cervical precancerous lesions. This was 2.4-fold higher odds in women aged 40-45 years. Frequent CCS for women who are at high risk of developing cervical cancer was discussed as critical at that stage (Teame et al., 2018).

While available evidence has shown the causal link between HPV and cervical cancer, other cervical cancer risk factors such as smoking, use of oral contraceptives, high parity, poor hygiene, HIV infection, and host susceptibility traits must be understood in the context of events influencing the natural history of cervical neoplasia that occur following the establishment of a persistent HPV infection. These are closely reviewed below.

2.3.2 Smoking tobacco

Tobacco smoking is not only associated with lung cancer but could increase the chances of developing cervical cancer in women (World Health Organisation [WHO], 2020). The International Agency for Research on Cancer performed a pooled analysis of 10 previously published case control studies in eight different countries to assess smoking

as the cofactor of progression from HPV to cancer. It was noted that smoking increases the risk of cervical cancer in HPV-positive women (Plummer et al., 2003). The epidemiological evidence of an association between smoking and cervical cancer can be the carcinogens in the smoke that possibly influence the spread of HPV infection through weakening of the immune system (Sugawara et al., 2019). Regardless, regular CCS is beneficial for both women smokers and non-smokers to avoid being diagnosed with cervical cancer at the late stage.

2.3.3 Oral contraceptives

Although the use of contraceptives is essential for controlling pregnancies, the downside of it can be the development of cervical cancer. Pooled data from 24 different studies discovered that women who had used oral contraceptives pills for more than 10 years at aged 20 were at risk of developing cervical cancer at age 50 with a cumulative incidence of 7.3 to 8.3 per 1000 in developing countries and 3.8 to 4.5 per 1000 in developed countries (International Collaboration of Epidemiological Studies of Cervical Cancer, 2007). However, a meta-analysis of case control studies including 15,619 participants (7,433 cases and 8,186 controls) did not show an association between oral contraceptive use and cervical cancer development (Peng et al., 2017). While there are variations in research outcomes pertaining to cervical cancer development and oral contraceptive use, there is still a need for future prospective cohort studies to assess the risks of oral contraceptive use causing cervical cancer. Nevertheless, emphasising the importance of CCS uptake is a necessary step to minimise the risks of developing cervical cancer in women (Roura et al., 2016).

2.3.4 High parity

High parity is one of the risk factors associated with cervical cancer. A pooled data analysis from eight case-control studies from four continents found that women who had seven full-term pregnancies or more and were younger than 17 years at first full-term pregnancy had a four-fold higher risk of squamous cell carcinoma of the cervix (Muñoz et al., 2002). A population-based cohort study in Denmark observed that CIN3+ was associated with persistent HPV infection (30.8%) and the number of childbirths, and not the number of pregnancies (Jensen et al., 2013). The relationship between parity and cervical carcinoma may have various explanations. However, the high level of oestrogen and progesterone during pregnancy and tissue damage during delivery causing an eversion of the columnar epithelium onto the ectocervix (ectopy) could be

possible mechanisms (International Collaboration of Epidemiological Studies of Cervical Cancer, 2006). Although there is no direct link between high parity and cervical cancer development, participating in CCS is beneficial for women to know their cervical cancer status earlier than being diagnosed at a late stage.

2.3.5 Poor hygiene

Poor hygienic conditions have been reported as a risk factor associated with development of cervical cancer. An hospital-based case control study from India discovered that women re-using home-made feminine napkins and not practising vaginal douching had a greater risk of developing cervical cancer (Bayo et al., 2002; Kashyap et al, 2019). Lack of running water, lack of a toilet inside the house, and poor vaginal hygiene before and after sexual intercourse were also factors identified as increasing the risk of developing cervical cancer (Franceschi et al., 2003; Wang et al., 2017). However, poor hygiene is possibly a cofactor for cervical cancer with HPV-prevalent infections although the epidemiological association is unclear. Nevertheless, women need to access CCS services given that poor hygiene is a cofactor of cervical cancer development.

2.3.6 HIV infection and cervical cancer development

Human immunodeficiency virus (HIV) can be a cofactor for developing cervical cancer in women. In a hospital-based case control study in West Africa, high-risk HPV types were detected in all (100%) HIV-positive women with cervical cancer and 98/110 (89%) of HIV-negative women with cervical cancer (Adjorlolo-Johnson et al., 2010). A recent retrospective cross-sectional study in Botswana discovered that the HPV genotype 16 was positively associated with invasive cervical cancer (75.4%) to a greater degree than other high-risk HPV genotypes (Tawe et al., 2020). Nevertheless, the relationship could be explained by the direct suppression of the immune system which may promote the persistence of HPV infection (Serraino et al., 1999). Although HIV and HPV share the sexual route of transmission, promoting CCS in populations with high prevalence is warranted (Adjorlolo-Johnson et al., 2010). As such, examining the current CCS methods would be an ideal step in managing the cervical cancer burden in the Pacific, provided that CCS has the potential to reduce cervical cancer incidence by early detection and treatment of the precursors (Andrae et al., 2012).

The World Health Organization recommends cytology testing (Pap test), unaided visual inspection with acetic acid (VIA), and HPV test (WHO, 2013). These tests are widely used by countries depending on their socio-economic stratum (WHO, 2013).

2.4 Types of cervical cancer screening

2.4.1 Cytology-based cervical cancer screening

Cytology-based screening has been the traditional method of screening for over 50 years (Beal et al., 2014). Screening with cytology involves a procedure whereby the cervical tissue cells are examined through histology to detect precancerous cervical lesions (Rerucha et al., 2018). This procedure can detect the early stage of squamous intraepithelial lesions known as CIN1 (Rerucha et al., 2018). Cytology-based screening is offered by high-income and several middle-income countries as it provides accurate results and requires well-resourced settings (Mo et al., 2017). Countries such as the United States (US) have been offering cytology-based screening since inception, which has resulted in a 90% drop in cervical cancer mortality (Saslow et al., 2012). However, cytology-based screening requires considerable training, significant infrastructure, and quality assurance; it is time intense and dependent upon repeat testing every three to five years (Cubie & Campbell, 2020). As such, these tests might not be relevant for the under-resourced settings, especially the Pacific countries. Given these challenges, the WHO has recommended an alternative approach, particularly for the developing countries, of “screen and treat” strategies that require same-day testing and examinations (Toliman et al., 2018) such as the VIA and HPV screening methods.

2.4.2 Visual inspection with acetic acid (VIA)

The VIA is the alternative screening method for resource-scarce countries as it is cost-effective, less technically complex, and results can be provided in a single visit compared to the conventional cytology-based screening (Raifu et al., 2017). The procedure includes the application of acetic acid into the cervix and observation of aceto-white staining to confirm the presence of HPV (Toliman et al., 2018). Women with tissue abnormality at this stage can be referred for further investigation and management. While this is one of the initial steps in detecting the HPV virus, countries such as Thailand, India and several South African countries have adopted VIA screening and have shown favourable reductions in incidences of high-grade lesions and

cervical cancer mortality (Denny et al., 2017). A large, randomised controlled trial study in India showed that the utilisation of VIA has led to significant reduction of incidence by 25% and a 35% reduction in cervical cancer mortality after seven years of follow-up (Sankaranarayanan et al., 2007). A pilot study in Vanuatu that investigated the appropriate cost-effective intervention to address cervical cancer in Ni-Vanuatu women (over 30 years of age) found that VIA was a relevant method for resource-poor countries (McAdam et al., 2010). This study found that 43% of healthy and previously unscreened women showed significant abnormalities through VIA testing. Although specificity and efficacy were not guaranteed by this method, women who were at risk were identified through the use of VIA testing (McAdam et al., 2010). Thus, VIA can be a relevant method for Pacific women who are healthy but unaware of their cervical cancer status.

2.4.3 Self-sampling HPV testing method

HPV self-sampling is another alternative screening method for the resource-poor countries. HPV self-sampling is a procedure where a woman collects her own vaginal sample using an HPV kit, based on instructions from a health professional, which is sent to the laboratory for investigations (Yeh et al., 2019). The systematic review and meta-analysis by Yeh et al., (2019) showed that providing a self-sampling kit to women in under-resourced settings could increase the rate of primary detection of cervical cancer. In a pilot randomised study in New Zealand that assessed the acceptability of participation in screening among Māori and Pacific women, it was found that 70% of the women preferred to use the self-sampling method. Although self-sampling of HPV might not provide an accurate diagnosis, the benefits of identifying the women at risk and the privacy measures encourage more women to be tested (Yeh et al., 2019). Hence, self-sampling screening is another potential method that the Pacific countries can adopt to detect high-risk women.

Nevertheless, the utilisation of CCS methods is a major problem for most developing countries with and without organised CCS programmes (Sankaranarayanan et al., 2003). Inequalities within population groups persist that also determine screening uptake (Sarfati et al., 2010). For instance, a retrospective cohort study in New Zealand found that, the percentages for ‘ever screened’ (one smear more than six months before diagnosis) and for ‘regular screening’ (2 smears in 6-114 months) were highest in European women (46.1% and 15.3%, respectively), and lowest in Pacific women (24.8% and 5.7%, respectively) (Brewer et al., 2011). On the other hand, geographical

impediments, low literacy levels, and low socio-economic status are factors identified as barriers to screening uptake in developing countries (Sankaranarayanan et al., 2003). Examining the global literature might provide some insights into factors that prevent and facilitate CCS uptake.

2.5 Barriers to and facilitators of cervical cancer screening uptake from the global literature

A global literature search was conducted to identify factors that prevent women from utilising cervical screening. A number of multifaceted barriers have been identified including lack of knowledge and awareness, cultural beliefs and attitudes, socio-economical and lack of employment, and the health system barriers. The barriers to CCS uptake are as discussed below.

2.5.1 Barriers

Lack of knowledge and awareness

Limited or lack of knowledge and awareness of the benefits of CCS can determine CCS uptake in women. Various studies have shown that lack of knowledge and awareness regarding the link between HPV and the importance of CCS uptake hinders women from utilising CCS (Gele et al., 2017; Getachew et al., 2019; McFarland et al., 2016; Mwaka et al., 2016; Ndejjo et al., 2017). The study by Gele et al. (2017) showed that language barriers hindered the communication of cervical cancer information and the relevance of CCS. Mwaka et al. (2016) noted that lack knowledge and awareness of CCS was possibly linked to limited community-based awareness regarding the availability and importance of CCS. In addition, the lack of adequate information on CCS provided by health professionals to women also shaped the level of understanding of women regarding the benefits of CCS uptake and that ultimately affected the decision-making process in regard to utilising CCS (Getachew et al., 2019).

Cultural beliefs and attitudes

Cultural taboos and religious beliefs were identified by the literature as barriers to CCS uptake. A strong cultural hold on sexuality, where a woman's body is private, and the link with a Pap smear test discouraged women from seeking CCS (Ferdous et al., 2018; Ragan et al., 2018). Fear of social stigma surrounding CCS also affected women's

screening behaviour (Bateman et al., 2019). Religious beliefs (e.g., disease is up to God) were cited as barriers associated with CCS (Buchanan Lunsford et al., 2017; Ferdous et al., 2018).

The study by Thapa et. (2018). noted that women could not seek preventative measures due to having “no symptoms” and embarrassment at exposing their genitalia. In addition, the lack of patriarchal and family support were also culturally related practices that prevented women from accessing CCS services (Buchanan Lunsford et al., 2017; Lim & Ojo, 2017; Ragan et al., 2018). Women believed that, once diagnosed with cervical cancer, nothing further could be done; thus, women feared utilising screening services for fear of learning of positive results (Agurto et al., 2004; Mukama et al., 2017; Ndejjo et al., 2017).

Poor socio-economic status and lack of employment

The socio-economic background and employment status of women determines CCS uptake. Poor socio-economic status and lack of employment were cited as barriers to CCS uptake (Darj et al., 2019; Ferdous et al., 2018; Leinonen et al., 2017). The study in Nepal by Darj et al. (2019), found that financial constraints were a major barrier preventing women from poor socio-economic backgrounds attending cervical screening clinics. Moreover, seeking non-emergency healthcare services such as CCS was not a priority for women from poor socio-economic backgrounds (Lim & Ojo, 2017). The hidden costs, such as payments of transportation to access CCS, impeded women for utilising CCS (Lim & Ojo, 2017). Another study in Norway discovered that women being unemployed and having low incomes were factors associated with non-adherence to CCS (Leinonen et al. 2017). Providing CCS tests at accessible locations would improve CCS uptake for women from poor socio-economic backgrounds.

Healthcare system barriers

The way in which the healthcare system functions can prevent women from accessing CCS facilities. It was cited across the literature that lack of confidence in the service provided, limited access to female health professionals, long waiting times and poor patient–doctor rapport were potential barriers to CCS uptake (Adunlin et al., 2019; Binka et al., 2019; Fang & Baker, 2013; Gele et al., 2017). According to Adunlin et al., (2019), lack of access to CCS services, lack of interpreter services, and insensitivity to women’s needs were factors that prevented women from navigating CCS services. Moreover, perceived health workers’ attitude, perceived lack of privacy, and

misdiagnosis were also system barriers identified as preventing women from utilising CCS (Binka et al., 2019). Addressing the various health system barriers could improve CCS uptake in women.

Nevertheless, there are specific factors that can enable women to utilise CCS. The review identified some of the factors that facilitate CCS uptake. These included: adequate knowledge and awareness, optimal healthcare services, and personal facilitators. The following sections will look closely at these areas that facilitate screening uptake for women.

2.6 Facilitators of cervical screening uptake

2.6.1 Facilitators

Adequate knowledge and awareness

Women having adequate knowledge and awareness of CCS facilitates CCS uptake. The global review of literature has shown that enhanced knowledge and awareness pertaining to the availability of CCS services and risk factors associated with the development of cervical cancer were facilitators to CCS uptake by women (Ashtarian et al., 2017; Black et al., 2019; Ndejjo et al., 2017). The use of religious spaces, health facility notice boards and social media platforms to provide awareness were cited as facilitators for CCS uptake (Gele et al., 2017; Liebermann et al., 2020). Also, community based, culturally tailored health education, women friendly environments and bilingual health service providers were identified as determinants of utilising CCS (Brown et al., 2019; Darj et al., 2019; Gele et al., 2017; Lee & Lee, 2017). The use of existing women's groups to conduct CCS awareness programmes was believed to be motivating as it reduced women's perception of shame and encouraged women to utilise CCS services (Darj et al., 2019). Enhancing women's knowledge and awareness levels through the use of strategies that motivate and empower women is crucial for increasing CCS participation.

Optimal healthcare services

The ways in which the healthcare services are delivered can determine CCS uptake for women. Studies have shown that health services that provided low- or no-cost screening services promoted CCS uptake for women (Brown et al., 2019; Byrd, et al., 2007;

Idehen et al., 2020). Having health insurance cover was identified as a predictor for CCS uptake (Adunlin et al., 2019; Fang & Baker, 2013). Extending CCS services to accessible locations including home-based screening were factors identified as improving CCS uptake by women (Afolabi et al., 2017).

Moreover, offering the best standard of clinical practice at the health facility level – such as upholding the confidentiality of patients' conditions and providing improved clinical procedures and adequate space for screening, and using appropriate equipment for cervical examination were prompting factors for utilising CCS (Bateman et al., 2019). The specific attributes of doctors, including creating a warm, friendly environment, and a strong patient-staff rapport with ongoing reminders for screening, were also cited as amplifying CCS uptake (Anaman-Torgbor et al., 2017; Brown et al., 2019; Racey & Gesink, 2016).

Personal facilitators

Community support, formal employment and having an insurance protection facilitated CCS uptake in women. At an individual level, the support from communities or from families, either financially or emotionally, were factors that encouraged women to utilise CCS services (Bateman et al., 2019; Black et al., 2019; Darj et al., 2019; Driscoll, 2016). Encouragement from family members to attend CCS, especially spousal encouragement, was a vital motivator for CCS uptake (Black et al., 2019). In addition, it was found that women with formal employment were able to utilise CCS (Black et al., 2019). Having a well-paid job means women can cater for their basic individual needs and household welfare, and meet the direct and indirect costs of CCS uptake, otherwise CCS will not be prioritised. Furthermore, women having health insurance cover was cited as a predictor for CCS uptake (Adunlin et al., 2019).

Hence, healthcare providers and policy developers need to address the personal needs of women appropriately to seriously combat the incidence of cervical cancer.

2.7 Summary

In summary, this chapter has discussed the epidemiology of cervical cancer, risk factors for cervical cancer, types of CCS tests, and the global perspective on barriers to and facilitators of CCS uptake. The HPV-16 and HPV-18 subtypes are high prevalent genotypes responsible for cervical cancer development. Early sexual debut and having

multiple sexual partners poses a greater risk of developing cervical cancer. The use of HPV self-sampling is shown to be a relevant method in terms of privacy, cost effectiveness and result outcome which can be relevant for Pacific countries. From the review of the global literature on CCS uptake, having either limited or adequate knowledge and awareness was the dominant barrier or facilitator, respectively, for CCS uptake by women. However, in the wider Pacific, there is literature exploring the interplay of culture and the experiences of Pacific women that either facilitates or hinders women in utilising CCS services. The narrative review presented in the following chapters will provide insights into women's experiences of navigating CCS services in the Pacific.

Chapter 3: Methodology

3.1 Introduction

The aim of this study is to explore and analyse available literature pertaining to barriers and facilitators associated with utilisation of CCS in PNG and the wider Pacific. This chapter outlines the narrative review method, the search strategy employed, and the steps involved in data analysis and the synthesis of the literature. A narrative review is a non-systematic traditional method of review that provides broader perspective on current literature on a topic while also assimilating a range of research methodologies (McPherson et al., 2019). This type of review is relevant where the possibility for the aggregation of data is limited as it allows for different studies and fields to be analysed (Baumeister & Leary, 1997).

A narrative review utilises unsystematic approaches to the review of the literature and can be subjective, meaning information collected from the literature can be stories from lived experiences particularly when gathering information from primary studies (Green et al., 2006). In contrast, a systematic review employs a detailed and explicit methodology structured around a focused research question; as such, papers are critically reviewed in a systematically and consistent manner (Green et al., 2006). In addition, systematic reviews are evidence based since the reviewer critically evaluates each paper in the study using a systematic approach similar to positivist approaches, and this is relevant for solving a clinical dilemma. Although narrative reviews are not normally used to form evidence for a clinical dilemma, they provide a broader perspective around key clinical issues. Therefore, narrative reviews constitute an essential component of the literature base that focuses on broader factors that can lead to the investigation of a research issue (Green et al., 2006).

Furthermore, the quality and strength of narrative reviews is often improved through adopting methodologies used within systematic reviews and by using an effective bibliographic search strategy (Ferrari, 2015). Therefore narrative review allows for the meaning behind health issues to be uncovered at individual and societal levels (Jones, 2004). Cervical cancer incidence is a huge problem in the Pacific; however, in PNG, only one study has conducted a systematic review of the barriers to and enablers of CCS uptake (Elia & Devine, 2018). Although the review was useful in identifying key issues with CCS uptake, the review did not provide a broader understanding of the factors

influencing CCS uptake. As such, this narrative review is a timely opportunity to examine the literature pertaining to the barriers to and facilitators of CCS uptake and identify the gaps and possible solutions for addressing the cervical cancer burden in PNG.

3.2 Search strategy

A search strategy was conducted to identify both published and unpublished literature on the barriers to and facilitators of utilising CCS in PNG and the wider Pacific. An internet search was conducted electronically on CINAHL, the Cochrane Library, EBSCOhost, Scopus, and Google Scholar databases. A Population Intervention Comparison and Outcome model (PICO) was used to guide the search for the relevant articles pertaining the topic.

The PICO framework is a widely used model that was developed in 1995 by Richardson et al. (1995) to facilitate clinical research question development (as cited in Eriksen & Frandsen, 2018). It provides a process by which questions can be broken down into searchable keywords for reviews (Eriksen & Frandsen, 2018). In this study, this model was adopted to facilitate the search strategy used to identify articles related to the aim of this study. The keywords for the search included “Papua New Guinea women”, “Pacific women”, “Polynesian women” “Melanesian women”, “barriers”, “facilitators”, human papilloma virus”, cervical cancer”, “cervical cancer screening or pap smear screening” and “colposcopy”. Application of the truncation techniques was utilised to broaden the search while the Boolean operator (AND) was used to keep the search narrowed to the specified terms. Searches of all the databases were limited to the timeframe covering the years 1990 to 2020.

3.3 Data analysis and synthesis

Given the paucity of literature available in the Pacific and PNG, internet searches included peer-reviewed articles but also policy reports and grey literature (Ferrari, 2015). An item of grey literature is a research or report that is either unpublished or has been published in non-commercial or academic publishing channels (Pappas & Williams, 2011). The PRISMA diagram is often used for systematic reviews and meta-analyses to ensure a structured flow of information through different phases of the

review (Moher et al., 2009). An adapted version of the PRISMA diagram was utilised in this narrative review to select appropriate studies (refer Figure 1, below). The review included qualitative, quantitative, and mixed method studies, to cover the full extent of existing literature. The studies that were included are those that focus on the experiences of utilising CCS services of women from PNG and the wider Pacific. The studies that were excluded are those that did not focus on cervical cancer or screening programmes, were not focused on the Pacific or PNG, or were not written in English.

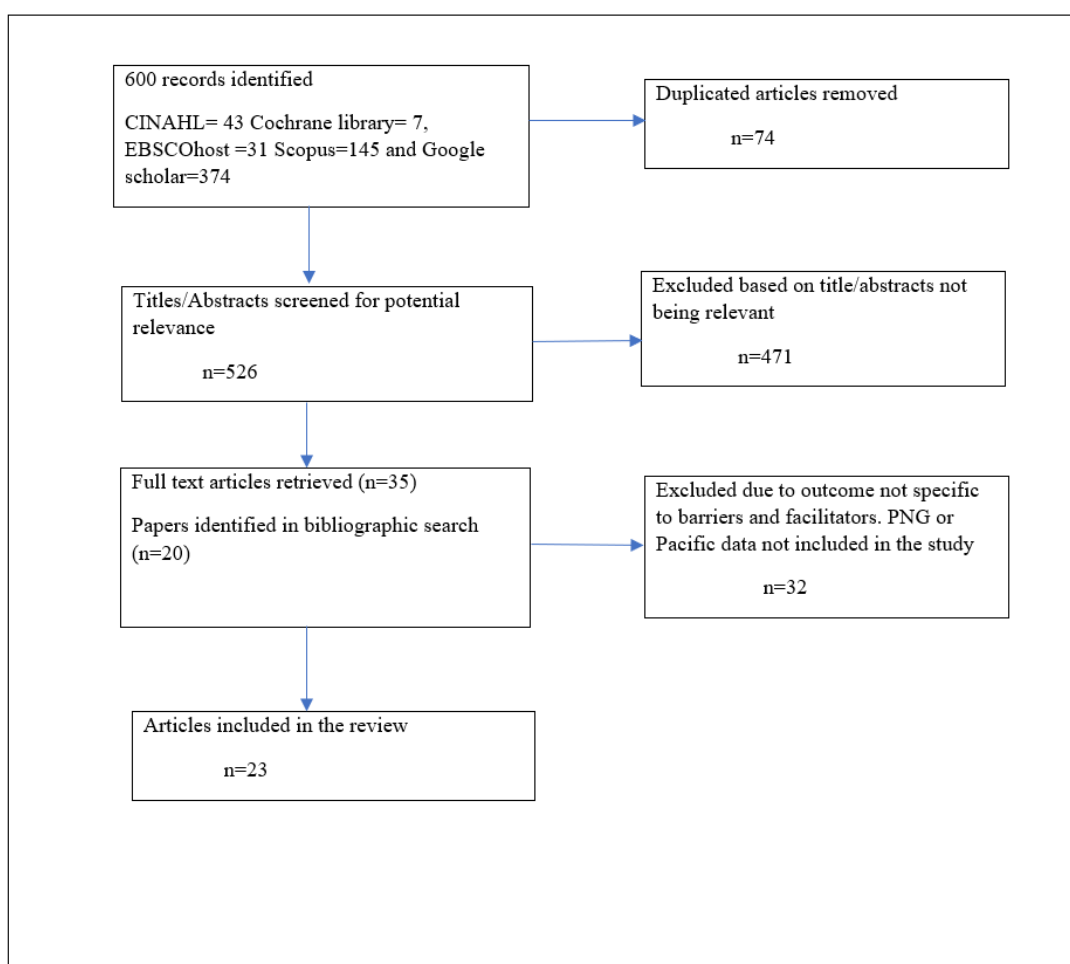


Figure 1. PRISMA diagram showing article search process.

Titles and abstracts of relevant studies extracted from the databases were saved while the duplicated ones were removed. The relevant articles had their full text examined to determine if they met the eligibility criteria. The eligible articles had their bibliographies examined and further articles of interest were identified. The search record identified a total of 600 studies: CINAHL=43, Cochrane library=7,

EBSCOhost=31, Scopus=145, and Google scholar=374. Seventy-four duplicated articles were removed from the articles identified. Titles and abstracts of 526 articles were examined for potential relevance and 471 studies were removed. Thirty-five full text articles were retrieved. In the assessment of the retrieved articles' bibliographies, 20 studies were identified. Twenty-three studies met the inclusion criteria (refer to the PRISMA flow chart in Figure 1). The main results identified in the literature search were factors that were associated with the CCS pathway of women from PNG and the wider Pacific. As such, the synthesis of the literature was mainly focused on barriers to and facilitators of CCS uptake for women from PNG and the wider Pacific.

The majority of the studies were from the US and focused on the United States Affiliated Pacific Island Jurisdiction (USAPIJ) countries. Few of the studies were from PNG, New Zealand, and Fiji. A table containing selected articles is attached as an appendix.

3.4 Thematic analysis

Data was tabulated on a template that was adapted from a systematic review template (Green et al., 2006). The tabulated data included the following headings: study reference information, study design, participants and location, methods, results summary, barriers, facilitators, and comments. The articles were carefully examined, and notes were made to capture relevant information. A thematic analysis process was used to analyse the data. Thematic analysis "is a method for identifying, analysing, and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 6) and was applied in this study to identify, within the articles being reviewed, the factors that facilitate or hinder PNG women in utilising CCS services. According to Braun and Clarke (2006), thematic analysis methods are useful for examining perspectives of participants related to their lived experiences, realities and meanings and the way social contexts impinge on these meanings (Braun & Clarke, 2006).

Although thematic analysis may lack coherence and consistency given the flexibility of the method, thematic analysis has the potential to assist a researcher summarise large data set into a clear and organised report (Nowell et al., 2017). As such, the findings in each article in the review were coded according to women's experiences and then categorised for the development of themes and subthemes (Braun & Clarke, 2006). While codes identify patterns in the data set, this information is often assessed in a

meaningful way through connecting the main ideas regarding the phenomenon, although context may be lost (Braun & Clarke, 2006). In this study, data was coded, and collated by forming lists of different codes identified across the articles. The coded themes were then grouped into two categories under barriers to and facilitators of CCS uptake for Pacific women. From the two categories, subthemes were developed under the barriers to and facilitators of screening. The subthemes were then analysed further to ascertain potential themes. These are discussed in depth in Chapter 4.

In summary, this chapter has discussed the significance of the narrative review in research and the process involved in the literature search. The steps of data analysis and synthesis were also discussed. The following chapter will discuss the main themes in the findings.

Chapter 4: Findings

4.1 Introduction

The aim of this study is to explore and analyse available literature pertaining to the barriers and facilitators associated with the utilisation of CCS in PNG and the wider Pacific. This chapter outlines the main findings associated with the barriers to and facilitators of utilising CCS in the Pacific. The main themes from the findings in terms of the barriers to and facilitators of CCS uptake are tabulated in Table 1 and Table 2 respectively. Most of the Pacific Island countries face common health service delivery challenges including the implementation of CCS programmes. Therefore, the findings in terms of the barriers to and facilitators of CCS uptake obtained from research in other Pacific Island countries can be applied to the PNG context, given that PNG has the highest burden of cervical cancer in women globally (see Tables 1 and 2) (Toliman et al., 2016). Tables 1 and 2 present the themes found in the Pacific, with the corresponding literature sources, highlighting the thematic areas which align with those of PNG. With a broader understanding of the factors that determine CCS uptake, policies addressing the cervical cancer burden in the Pacific and PNG can be developed accordingly.

The analysis included 23 articles from studies conducted in the Pacific region, of which three were studies conducted in PNG. The review has shown multifaceted, interrelated experiences that reflect the barriers and facilitators when navigating CCS pathways in the Pacific. A wide range of literature central to the Pacific Islands, involving various groups of Pacific women, health professionals, and health settings, was reviewed. Although the studies in the literature were carried out in various locations, common themes were identified in the thematic analysis process. According to Pope et al. (2006), a narrative review collates findings from the qualitative and quantitative reviews by identifying common themes, factors, and explanations to form a narrative or story relating to the topic. Thus, according to the themes generated from a thematic analysis of the selected articles, five main themes emerged that relate to barriers to CCS uptake and three themes emerged relating to facilitators of CCS uptake. Subthemes were then developed from the main themes.

4.2 Barriers to cervical cancer screening uptake

The five themes associated with barriers to CCS uptake were: (i) lack of awareness and understanding, (ii) cultural-religious taboos and practices, (iii) concerns about indirect costs of CCS uptake and poor socio-economic status, (iv) suboptimal healthcare delivery, and (vi) geographical impediments limiting access to CCS services. Refer to Table 1 for the summary of barriers to CCS uptake in the Pacific.

Table 1.

Barriers to cervical cancer screening in the Pacific

Main themes	PNG literature	Pacific literature	Sources
Lack of awareness and understanding	1	5	(Aitaoto et al., 2009; DiStefano et al., 2012; Jameson et al., 1999; Kelly-Hanku et al., 2018; Lovell et al., 2007; McPherson et al., 2019)
Cultural-religious taboos and practices	2	6	(Hubbell et al., 2005; Jamerson et al., 1999; Kelly-Hanku et al., 2018; Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019; Lovell et al., 2007; McPherson et al., 2019; Rosario, 2010; Sligo et al., 1998)
Concerns about indirect costs of cervical cancer screening uptake and poor socio-economic status	1	6	(Aitaoto et al., 2009; Elia & Devine, 2018; Foliaki & Matheson, 2015; Lovell et al., 2007; McPherson et al., 2019; Weiss et al., 2016; Wu et al., 2010)
Suboptimal healthcare delivery	2	12	(Aitaoto et al., 2009; Dang et al., 2010; DiStefano et al., 2012; Elia & Devine, 2018; Foliaki & Matheson, 2015; Jameson et al., 1999; Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019; Macpherson et al., 2019; Naidu et al., 2016; Obel et al., 2015; Sligo et al., 1998; Townsend et al., 2014; Weiss et al., 2016; Wu et al., 2010)
Geographical impediments limiting access to cervical cancer screening services	1	4	(Aitaoto et al., 2009; Elia & Devine, 2018; McPherson et al., 2019; Naidu et al., 2016; Obel et al., 2015)

4.2.1 Lack of awareness and understanding

Poor knowledge and language barriers

Lack of awareness and understanding were indicated through lack of knowledge among women, poor community awareness and language barriers. Poor knowledge and awareness were a predominant theme that emerged across the literature, irrespective of the different settings or sociodemographic backgrounds. A study by Aitaoto et al. (2009) identified that the major barrier to CCS uptake for Marshallese and the Chuukese women was limited knowledge of the English language, particularly for the older women aged 50 years above. The Marshallese and Chuukese women stated that they

lacked adequate information regarding the benefits of CCS uptake, the location of CCS services, and the recommended screening intervals. Jameson et al. (1999) found that poor grasp of English language for Pacific women in Palmerston North in New Zealand has led to a fear of participating in CCS programmes whereas Pacific women in South Auckland delayed utilising CCS services due to misinformation shaped by language barriers (Lovell et al., 2007). Moreover, DiStefano et al. (2012) showed that the awareness level for the Chamorro and Tongan community regarding the sexually transmitted HPV was limited due to poor community awareness. In PNG, Kelly-Hanku et al. (2018) found that women had limited knowledge of cervical cancer and that was associated with limitations in *tok pisin* language. *Tok pisin* is the imported language in PNG which is different from the 700-plus indigenous languages. Given the diversity of languages spoken in PNG, it is difficult to communicate biomedical knowledge of cervical cancer and associated risks locally. Similar language barriers could be experienced by women across the wider Pacific. Hence, the use of translator services and community-led awareness programmes pertaining cervical cancer risks and the importance of CCS would enhance the understanding level of women while also increasing CCS uptake.

4.2.2 Cultural-religious taboos and practices

Cultural taboo

The strong cultural hold on discussing sex-related organs and CCS is described as a “taboo” in the Pacific culture. Cultural beliefs and taboos have been seen across literature as barriers to CCS uptake (Hubbell et al., 2005; Jameson et al., 1999; Kelly-Hanku et al., 2018; McPherson et al., 2019). The difficulty and sensitivity associated with discussing sex and the associated link with CCS have been identified as barriers that impacted the screening behaviour of most Pacific women (Hubbell et al., 2005; Jameson et al., 1999; Kelly-Hanku et al., 2018; Kelly-Hanku, Newland, Aggleton, Ase, Fiya, et al., 2019; McPherson et al., 2019). Similarly, the literature in PNG found that the majority of the rural community lacked knowledge of HPV-related sexual diseases due to sensitivity and taboo when discussing the role of HPV in communities (Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019).

Religious and traditional norms

Another aspect is the religious and traditional beliefs that prevent CCS uptake. There are strong cultural-religious norms of abstinence from sex until marriage; hence the link

between having a smear and having had sex was a barrier for young Pacific women (DiStefano et al., 2012; Jameson et al., 1999; Rosario, 2010). In addition, Pacific women believed that God oversaw their lives; thus, seeking God's help through prayer was cited as a practice which women preferred over seeking preventative CCS methods (Hubbell et al., 2005; Sligo et al., 1998; Wu et al., 2010). On the other hand, some Samoan women sought traditional healing measures first and would only seek medical intervention if they were seriously ill (Hubbell et al., 2005). CCS was avoided while preference was given to religious and cultural measures. Community awareness is critical to clarify the risks to women of delaying CCS uptake and the importance of seeking CCS measures earlier.

Shame, stigma and discrimination

Moreover, cultural views in relation to a woman's body, and the associated shame, stigma, and discrimination, determine the CCS behaviour for most Pacific women. Pacific women believe that the genital area is a sacred part of the human body that can only be exposed to their husbands (Foliaki & Matheson, 2015; Hubbell et al., 2005; Jameson et al., 1999; Lovell et al., 2007; McPherson et al., 2019). Shame associated with exposing private parts of the body to doctors impeded Pacific women from accessing CCS (Hubbell et al., 2005; Jameson et al., 1999). In addition, Pacific women's perceived stigma and embarrassment at taking a smear impeded CCS uptake (Jameson et al., 1999; Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019; McPherson et al., 2019; Rosario, 2010). The anticipated stigma linked to having multiple sexual partners and the possibility of acquiring sexually transmitted diseases or involvement in sexually promiscuous activities were factors hindering women from taking Pap smears (Jameson et al., 1999; McPherson et al., 2019; Rosario, 2010; Sligo et al., 1998). Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al. (2019) found that women in PNG feared community stigma and blame, which prevented them from utilising preventative CCS measures. Similar challenges in regard to community stigma can be faced by women across the wider Pacific, and this prevents eligible women from undergoing CCS. Therefore, community awareness pertaining to the importance of CCS uptake is critical.

Women's roles and responsibilities

Furthermore, Pacific women have competing roles in their societies due to their collective livelihood. The literature shows that Pacific women prioritise the needs of

their families, extended family members and communities, and their religious obligations, over their individual wellbeing; thus, preventative measures for their own health in terms of CCS were not a priority (Aitaoto et al., 2009; Foliaki & Matheson, 2015; Jameson et al., 1999; McPherson et al., 2019). Women also worked more jobs to meet the entire family's needs while health checks including CCS were not prioritised (Aitaoto et al., 2009; DiStefano et al., 2012). As a consequence, women sought medical care later, when they were clinically unwell (DiStefano et al., 2012). Similar cultural roles hinder the majority of PNG women in utilising CCS. Improving Pacific women's awareness and understanding level regarding the benefits of CCS uptake is of paramount importance in this regard.

4.2.3 Concerns about indirect costs of cervical cancer screening uptake and poor socio-economic status

There were two main barriers identified at the personal level. These were the indirect cost of CCS uptake and the socio-economic background of Pacific women. The indirect cost associated with CCS was a barrier for the majority of the Pacific women (Aitaoto et al., 2009; Elia & Devine, 2018; Foliaki & Matheson, 2015; Lovell et al., 2007; McPherson et al., 2019; Weiss et al., 2016; Wu et al., 2010). Although Pap smear tests were free in some Pacific countries, the indirect costs in terms of transportation, childcare, and the time involved took precedence over CCS (Aitaoto et al., 2009; Weiss et al., 2016). The cost of household needs was weighed against Pap smear screening by Pacific women and if the family could afford the associated CCS cost, women would participate in CCS. Otherwise, CCS was not priority for Pacific women (Foliaki & Matheson, 2015; Wu et al., 2010).

Poor socio-economic status

The poor socio-economic status associated with low-paid jobs and economic challenges were factors that prevented Pacific women from utilising CCS services (Aitaoto et al., 2009; DiStefano et al., 2012; Jameson et al., 1999; Lovell et al., 2007; McPherson et al., 2019; Naidu et al., 2016). For instance, Marshallese and Chuukese residents in Hawai'i tend to be poor and have low-paying jobs (Aitaoto et al., 2009). Given the low-paid jobs, some Pacific women worked more than one job to meet the basic needs of their families. Hence, their reproductive health needs, including CCS, were not prioritised (Aitaoto et al., 2009; Foliaki & Matheson, 2015). While similar socio-economic challenges are faced in PNG, Elia and Devine (2019) have recommended cost-effective

screening strategies. Offering affordable CCS tests can reduce socio-economic barriers, not only for PNG women but for Pacific women with similar challenges.

4.2.4 Suboptimal healthcare delivery

The provision of health services delivered to Pacific women is crucial in determining CCS uptake. The way in which services are framed and provided can either improve CCS uptake or create barriers to CCS. This review has identified four subthemes under suboptimal healthcare delivery: (i) negative healthcare experiences, (ii) fear of negative diagnosis outcome and misperception, (iii) lack of staff knowledge on emerging technologies and CCS guidelines, (iv) concerns about maintaining confidentiality impeding cervical screening uptake, and (v) lack of relevant resources for cervical screening.

Negative healthcare experiences

The negative healthcare experiences of Pacific women are major barriers to participating in CCS services. Women's experiences of long waiting times in the health facility and preferential treatment for those with high status were problems that negatively influenced Pacific women's CCS behaviour (McPherson et al., 2019; Wu et al., 2010). The privacy of patients was cited as a concern for most Pacific women. For instance, the examination tables and the obstetrics and gynaecology examination rooms were partitioned by curtains; thus, conversations between the women and the health practitioners were overheard.

Problems with clinical examinations such as bodies not being well covered and the use of a metal speculum rather than a plastic speculum for vaginal examination were factors identified as negative experiences and possible barriers to screening (McPherson et al., 2019; Wu et al., 2010). A lack of interpreter services in the health care facilities were also identified as barriers to CCS (Dang et al., 2010; DiStefano et al., 2012). Women reported that some doctors did not listen to their histories adequately, their medical conditions were not adequately explained, and not enough information was provided pertaining the medications that were prescribed (McPherson et al., 2019; Wu et al., 2010). Respecting individual rights and establishing rapport with the Pacific women during their first visit to the clinic was emphasised as having the potential to increase CCS uptake in the future (Foliaki & Matheson, 2015).

Fear of negative diagnosis outcome, and misperceptions

The fear of the unknown outcome and the possibility of being diagnosed with cervical cancer was a barrier to utilising CCS (Aitaoto et al., 2009; Jameson et al., 1999; McPherson et al., 2019). There were misperceptions about the procedure involved that prevented women from utilising CCS. Pacific women feared that virginity could be compromised in the process of Pap smear screening (DiStefano et al., 2012). The fear of anticipated pain and discomfort associated with CCS was also discovered to be an obstacle that prevented women from attending CCS services (McPherson et al., 2019; Naidu et al., 2016; Weiss et al., 2016).

Lack of staff knowledge on emerging technologies and cervical cancer screening guidelines

Lack of staff knowledge and experience was identified as a barrier to CCS in the Pacific (Elia & Devine, 2018; Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019; Townsend et al., 2014). Townsend et al. (2014) found that there was lack of knowledge of CCS guidelines and emerging technologies. Some of the healthcare providers in the Pacific were not aware of the CCS methods such as VIA and self-sampling tests (Townsend et al., 2014). Lack of knowledge and limited training for health professionals in the Pacific Island countries were barriers to CCS (Foliaki & Matheson, 2015; Obel et al., 2015). A lack of clarity in the messages provided by healthcare providers detailing cervical cancer preventative measures was reported to be a possible factor associated with poor CCS uptake in PNG (Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019). Similar barriers may be experienced by women in the wider Pacific. The need to enhance health professional knowledge through staff training has been emphasised (Elia & Devine, 2018; Foliaki & Matheson, 2015). Subsequently, building professional knowledge regarding the relevance of patient–staff rapport, understanding cultural norms and Pacific women’s comfort levels is imperative to increase and maintain CCS uptake for Pacific women.

Confidentiality concerns

A lack of confidentiality is a major barrier to CCS uptake for Pacific women. Visiting a Pacific healthcare practitioner for cervical examination was cited as a concern due to the fear of community gossip and associated stigma for utilising CCS services (Jameson et al., 1999; Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019; McPherson et al., 2019; Sligo et al, 1998). Moreover, having a male healthcare provider performing CCS

was identified as culturally inappropriate and associated with confidentiality issues (Elia & Devine, 2018). Anxiety about a lack of confidentiality within small community groups were factors that prevented women from utilising CCS services (Jameson et al., 1999). The preference for a non-Pacific healthcare provider was discussed by Pacific women as crucial in response to this concern (Jameson et al., 1999; McPherson et al., 2019). Upholding confidentiality for Pacific women is crucial to maintain consistency in CCS uptake for Pacific women.

Lack of relevant resources for cervical screening

The ways in which health services are delivered were identified as a barrier to CCS uptake. Lack of appropriate technology and equipment to adequately screen women, lack of language-specific healthcare providers for interpreting purposes, and few Pacific healthcare providers in the health service system were barriers associated with CCS uptake (Elia & Devine, 2018; Foliaki & Matheson, 2015; McPherson et al., 2019; Townsend et al., 2014). Furthermore, Foliaki and Matheson (2015) interviewed Pacific healthcare providers from Wellington in New Zealand and found that difficulties with funding sources coupled with frequent changes to the funding rules were barriers to CCS uptake (Foliaki & Matheson, 2015). Nevertheless, in PNG, Elia and Devine (2018) identified limited testing and diagnostic services for CCS as hampering women's screening uptake. While the wider Pacific could be experiencing common challenges, strengthening the health system through offering interpreter services and building diagnostic facilities at accessible locations with consistent funding would reduce some of these barriers.

4.2.5 Geographical impediments limiting access to cervical cancer screening services.

Geographical barriers with limited access to CCS facilities were discovered to be a barrier to CCS. Hours spent in gaining access and the challenges of geographical constraints were reported by Pacific women as barriers to CCS (Aitaoto et al., 2009; Elia & Devine, 2018; McPherson et al., 2019; Naidu et al., 2016; Obel et al., 2015). Naidu et al. (2016) found that the rural women in Ba, Lautoka, and Nadi in Fiji would access CCS facilities only by vehicle. Many Pacific women stated that they had difficulties getting appointments from Island residences with limited or no regular transport services (Aitaoto et al., 2009; Obel et al., 2015). Conversely, geographical barriers hindered healthcare providers from reaching out to women at community level and providing CCS services (McPherson et al., 2019). In PNG, Elia and Devine (2018)

identified access to CCS facilities as a challenge for rural dwellers given that provincial hospitals with appropriate technologies for CCS are located at strategic locations. Improving CCS services through increased accessibility, such as rural outreach programmes, could alter barriers associated with accessibility issues in the Pacific (Aitaoto et al., 2009).

4.3 Facilitators of cervical cancer screening uptake

The factors that facilitated Pacific women’s utilisation of CCS services were multifaceted. The thematic analysis identified three main themes: (i) culturally centred interventions for CCS, (ii) affordability and accessibility of CCS services, and (iii) health insurance protection. Subthemes were developed from the main themes. Refer to Table 2 below for the summary of themes.

This review shows that there has been limited literature pertaining to the facilitators of CCS uptake in the Pacific compared to research on the barriers to CCS uptake. In addition, no studies have been conducted in PNG around the significance of health insurance protection for women and CCS uptake. While poor socio-economic status and lack of employment are obstacles to CCS uptake, it would be imperative for future studies to investigate the topic of women having an insurance cover and CCS uptake in PNG.

Table 2.

Facilitators of cervical cancer screening uptake in the Pacific

Main themes	PNG literature	Pacific literature	Sources
Culturally centred interventions for cervical cancer screening	1	8	(Aitaoto et al., 2009; Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019; McPherson et al., 2019; Mishra et al., 2009; Mouttapa et al., 2016; Sligo et al., 1999; Tanjasiri et al., 2019; Tanjasiri et al., 2012; Tran et al., 2012)
Affordability of and accessibility to cervical cancer screening services	1	2	(Aitaoto et al., 2009; Elia & Devine, 2018; McPherson et al., 2019)
Health insurance protection		3	(McPherson et al., 2019; Tanjasiri et al., 2012; Tran et al., 2010)

4.3.1 Culturally centred interventions for cervical cancer screening

Culturally tailored awareness strategies

It was cited across the literature that culturally tailored education and awareness programmes for CCS that are community centred were viewed as factors that prompted women to utilise CCS services (Aitaoto et al., 2009; McPherson et al., 2019; Mishra et al., 2009; Sligo et al., 1998; Tran et al., 2010). Resources containing Pacific images and symbols with context-specific language were identified as informative for and well understood by Pacific women and, in turn, they facilitated CCS uptake (Aitaoto et al., 2009; McPherson et al., 2019; Mishra et al., 2009; Sligo et al., 1998). The study by Sligo et al. (1998) focused on exploring methods that were relevant for enhancing levels of understanding about CCS methods for Pacific women in Palmerston North, New Zealand. The study found that the pamphlets containing basic facts about cervical cancer and Pacific designs, and presented in Pacific languages, were understood by the Pacific women and increased knowledge. Churches and community meeting places were identified as ideal avenues for disseminating awareness messages (Aitaoto et al., 2009; McPherson et al., 2019; Mishra et al., 2009; Sligo et al., 1998). On the other hand, mass media campaigns and awareness through listening to ethnic radio stations were suggested by the Marshallese and Hawaiians as potential avenues for increasing awareness levels (Aitaoto et al., 2009). While these communication methods would need sophisticated radio networks and infrastructure, they may not be appropriate in PNG due to poor radio networks and transmission. However, the use of culturally designed pamphlets would be ideal for improving awareness levels.

Collective approach of awareness

Pacific women live a collective life, therefore, implementing screening programmes through a collective approach would improve access to CCS participation. The literature from the Pacific has shown that women participated in CCS services through encouragement from friends and family members, including husbands (Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., 2019; McPherson et al., 2019; Mouttapa et al., 2016; Tanjasiri, et al., 2019). Husbands of Pacific women play a vital role in promoting women's cervical cancer prevention behaviours in terms of emotional support (Tanjasiri et al., 2019). In the US, Aitaoto et al. (2009) found that Micronesians increased their level of understanding through listening to group presentations. The group discussions amongst community members facilitated enhanced awareness levels. Therefore,

incorporating social support messages into interventions can increase CCS participation for Pacific women (Tanasiri et al., 2019).

CCS health promoters and providers

Culturally tailored healthcare services determine CCS participation for Pacific women. The literature shows that having health providers that are friendly and offer an all-female environment was identified as a facilitator for CCS uptake (Elia & Devine, 2018; McPherson et al., 2019). The engagement of local staff who have established links in terms of relationships with the members of the community was also identified as a facilitator (Aitaoto et al., 2009; McPherson et al., 2019; Tran et al., 2010). In addition, the engagement of a translator as an initial contact person with the mainstream health system was discussed as paramount in promoting CCS uptake (McPherson et al., 2019; Tran et al., 2010). Another approach to increasing CCS uptake is the engagement of lay health educators in community awareness programmes. Mishra et al. (2009) found that the use of appropriate language and terms by a lay health educator enhanced Samoan women's understanding level and further facilitated CCS uptake. Similar approaches would improve CCS uptake for women in PNG and the wider Pacific.

4.3.2 Affordability of and accessibility to cervical cancer screening services

The affordability and accessibility of CCS services were identified as factors that could increase CCS uptake for Pacific women. Accessing the hard-to-reach communities through outreach mobile clinics was identified as a facilitator for improving CCS uptake (Aitaoto et al., 2009; Elia & Devine, 2018; McPherson et al., 2019). Many Pacific women live in areas that are geographically isolated from the main health facilities; thus, providing outreach services can reduce geographical barriers while also improving CCS participation. As well, providing free options for CCS services was a facilitator of CCS uptake for Pacific women (McPherson et al., 2019). Assistance with transportation was another factor identified as increasing screening uptake for Pacific women, given that some women live in areas with limited transportation services (McPherson et al., 2019). A pioneering systematic review of research conducted in PNG pointed out that offering of cheap tests kits, at accessible locations, would increase CCS uptake for PNG women who are geographically isolated to main healthcare facilities (Elia & Devine, 2018). Consequently, for women across the wider Pacific, providing cost-effective approaches for cervical screening at accessible locations can improve screening uptake.

4.3.3 Health insurance protection

Women's health insurance has been identified as a major predictor for CCS uptake for Pacific women (McPherson et al., 2019; Tanjasiri et al., 2012; Tran et al., 2010).

Tanjasiri et al. (2012) conducted a study to assess behaviour toward CCS among Chamorro women in California and found that having health insurance was a major predictor for utilising CCS services. The study showed that more than 95% of women who had a Pap smear test in the last two years (between 2002 to 2005) were those with insurance cover. A similar study was conducted by Tran et al. (2010) to assess CCS uptake by native Hawaiian women. An estimated 59% of the Hawaiian women with current health insurance were compliant with CCS uptake for one year.

In PNG, there are providers of health insurance, but insurance is only offered to women who are employed by specific organisations. While the majority of PNG women are not covered by health insurance, offering free or low-cost CCS methods can substitute for health insurance cover while also facilitating screening uptake for women in PNG and the wider Pacific.

4.4 Summary of the findings

This chapter has identified five main themes relating to barriers to CCS uptake and three themes relating to facilitators. It was noted that the majority of the studies reviewed were focused on barriers to CCS rather than facilitators. Also, this study has found that Pacific women's negative experiences of suboptimal healthcare services has significantly determined their CCS behaviour. Future research needs to look at factors that can facilitate CCS uptake by Pacific women.

Chapter 5: Discussion

This study aimed to review the literature pertaining to barriers and facilitators associated with the utilisation of CCS in PNG and the wider Pacific. In this chapter, the main findings in the review are discussed. Based on the findings, the discussions are arranged under four main headings. These are: (i) improving knowledge and understanding through interpreter services, (ii) Pacific-centric health education strategies, (iii) improving access to CCS uptake through integrated mobile patrols, and (iv) enhancing staff knowledge on emerging technologies and culturally acceptable measures. Following those sections, the gaps and recommendations identified in the review are discussed, strengths and limitations are acknowledged, and a significant conclusion is drawn with recommendations. This narrative review highlights a number of unique perspectives on CCS uptake by Pacific women that are multifaceted and interactive. Most of the knowledge on the barriers to CCS is based on research studying Pacific women in the US and New Zealand, while a few studies focussed on PNG. Despite the variations in sources, all studies showed there are similar challenges. Therefore, the findings identified in the review are critical in terms of guiding policy makers in PNG and the Pacific as a whole to ensure that obstacles are either minimised or eliminated through strengthening the cervical screening navigation pathway for women.

5.1 Improving knowledge and understanding through interpreter services

Lack of knowledge and understanding pertaining to cervical cancer was a common barrier identified across the literature that prevented women from utilising CCS services in the Pacific. Literature from studies in the US, New Zealand and PNG discovered that Pacific women lacked appropriate knowledge pertaining to cervical cancer disease, the frequency of screening and the location of CCS services, due to a lack of awareness provided at the community level and also because of language barriers. In the US, discussing health concepts with the Marshallese and Chuukese women was challenging when natives' languages did not have suitable words related to the medical concepts (Aitaoto et al., 2009). Similarly, in PNG, the language barrier is one major obstacle to CCS uptake. The *tok pisin* language is an introduced national language in PNG separate from the 700-plus indigenous local languages. Regardless, some communities

understand their local dialect better than the introduced *tok pisin* language though it is widely known and used as one of the main national languages. Thus, the interpretation of biomedical concepts and cervical cancer disease by local communities and health professionals varies in diverse ways that further affects PNG women's CCS behaviours. The success of cervical cancer prevention strategies will depend significantly on the healthcare providers' capacity to transfer relevant information to women in the community (Ports et al., 2015). This study has highlighted the use of interpreter services by Pacific women as an effective strategy to reduce the language barriers associated with misunderstanding. Offering formal training and engaging bilingual healthcare providers in the mainstream health system along with community health educators (bicultural patient navigators) should be a vital component of reducing language barriers and improving CCS uptake in the Pacific (Dang et al., 2010). Nevertheless, the need to understand issues relating to using either relatives or medical professionals as interpreters in terms of staff efficiency, cost-effectiveness, patient satisfaction, and medical outcomes is paramount (Dang et al., 2010).

5.2 Pacific-centric health education strategies

The literature review has also shown that the strong cultural hold on the discussion of sex and reproductive health issues by Pacific communities is a major obstacle that prevents women from utilising CCS services. Fear imposed by stigma from the community around CCS uptake further prevents Pacific women from participating in CCS services. Pacific women fear utilising CCS services due to misperceptions of the procedure and a fear of medical information not being kept confidential by the healthcare providers. Nevertheless, this study has also found that collective awareness and culturally centred approaches are effective strategies of health promotion that can facilitate CCS uptake. Health awareness messages that are framed in a way that follows cultural norms, values and ways of understanding can have enormous impacts on Pacific women's level of understanding and CCS behaviour (Aitaoto et al., 2009). For instance, health education resources such as language-specific pamphlets containing context-specific symbols and visual images are effective approaches.

Moreover, the collective approach to awareness has good outcomes for CCS uptake in the Pacific. For Pacific communities, church settings and family clans are important social structures in the community whereby learning occurs through the social

connection people have with the families and friends (Tanjasi et al., 2004). In considering that approach, community meeting centres and church settings should be locally relevant avenues for providing health awareness. Including social support awareness messages in health promotion materials is fundamental for strengthening CCS uptake given that Pacific women gain emotional and informational support from their husbands (Moultapa et al., 2016). In PNG, men prioritise social obligations in the communities over women's reproductive health needs (Kura et al., 2013). More importantly, polygamy is an accepted cultural norm in PNG, where men can have four to six wives, which could also account for the high HPV infection rate in PNG women (Tabone et al., 2012). Therefore, social support messages and knowledge regarding the role of HPV infection in cervical cancer is pertinent for the male population in PNG as well as men across the wider Pacific. With adequate spousal knowledge, men can support women to actively participate in CCS services.

5.3 Improving access to cervical cancer screening uptake through integrated mobile patrols

The negative experiences of poor access to the healthcare services with relevant testing and diagnostic facilities has been identified as a barrier to CCS uptake. Hours of walking, geographical impediments, and difficulties in getting an appointment from their island residences due to lack of regular transport services were common barriers identified across the Pacific. In Fiji, the Bau Latuoka women could only access the main hospital facilities with motor vehicles. Limited or no access to regular transport services hindered the Bau Latuoka women from utilising CCS services. Similarly, in PNG, access to provincial hospitals by rural dwellers is hindered by geographical barriers and poor road links connecting them with basic health services (Gibson & Rozelle, 2003). Nevertheless, while some of the social barriers to cervical screening are unavoidable by Pacific women, the ways in which the health services are delivered can actively alter some of the barriers to better women's health outcomes (Sarfati et al., 2010).

This review has found that strategies that improve accessibility to CCS can minimise barriers to CCS uptake. The community-based outreach programme is one effective strategy that links underserved individuals to the healthcare system (Engelstad et al., 2005). Extending integrated community-based mobile outreach patrols in terms of awareness and community-based CCS can have multifaceted benefits for Pacific

women. Conducting outreach health promotion awareness in native languages with the assistance of lay educators has been shown to have a significant impact on Pacific women's CCS behaviour (Aitaoto et al., 2009). Women who are lost to follow-up can also be identified through outreach patrols (Engelstad et al., 2005). Cervical cancer testing that does not require complex technology, such as VIA, can be offered through mobile outreach patrols by the healthcare providers. Moreover, the socio-economic barriers to accessing CCS services faced by Pacific women can be minimised through mobile outreach programmes (Foliaki & Matheson, 2015). Therefore, integrated mobile outreach is one relevant strategy to improve access to CCS services by Pacific women.

5.4 Enhancing staff knowledge on emerging technologies and culturally acceptable measures

Lack of staff knowledge on emerging technologies of CCS has been identified as a constraint on CCS uptake for women in the Pacific. Some healthcare providers had no knowledge of CCS guidelines and the availability of screening methods such as the point-of-care HPV tests (Townsend et al., 2014). Many healthcare providers in the Pacific refer women to hospitals for diagnostic and further investigations due to the lack of appropriate technologies and knowledge of emerging technologies for CCS (Townsend et al., 2014). In PNG, rural health facilities are staffed by community health workers who are only allowed to perform first aid care and not CCS. Thus, the majority of the eligible women who can be screened at rural health facilities are referred to provincial hospitals with specialised equipment and health workers (Elia & Devine, 2018).

Townsend et al. (2014) emphasised that Pacific women come from diverse cultures with different beliefs and, thus, cultural acceptability needs to be considered as new technologies of screening emerge. Cultural acceptability might not be an issue if results of CCS are provided immediately (Busingye et al., 2012). On that note, the use of HPV self-sampling screening would be an ideal method for Pacific women in terms of convenience, privacy, ease of use, and cost-effectiveness (Madzima et al., 2017). Self-collection HPV testing has been proven to be an effective method of reaching the underserved populations which ultimately increases screening CCS uptake (Arbyn & Castle, 2015; Gupta et al., 2018; Verdoodt et al., 2015; Zhao et al., 2012). In addition, women who are uncomfortable with being examined by male healthcare providers can

be given the option of alternative screening technologies such as the HPV self-sampling method. However, adequate staff knowledge on the use of CCS methods is paramount and, ultimately, it could avoid unnecessary referrals and improve women's participation in CCS programmes. Furthermore, training should include information around staff professionalism, culturally acceptable approaches, and the importance of patient–staff rapport to strengthen CCS uptake by Pacific women. For training to be successful, consistent funding has been emphasised (Foliaki & Matheson, 2015).

5.5 Gaps identified in the research

Poor access to health facilities that offer CCS was identified as a significant barrier to CCS uptake for women in the Pacific. Thus, Foliaki and Matheson (2015) emphasised that further studies need to investigate strategic approaches to conducting mobile outreach patrols to meet the CCS needs of Pacific women. In addition, offering cheap and affordable methods has been discussed as beneficial in terms of improving CCS uptake by women in PNG and the wider Pacific. Nevertheless, future research needs to look at how available cheap and affordable methods are in PNG and the wider Pacific.

A lack of consistent funding of CCS services was identified as an obstacle to CCS uptake. Hence, Tanjasiri et al., (2019) has suggested that future research should look into ways that funding issues can be addressed through a wider understanding of an integrated system of health comprising multilevel service providers (both public and private, hospital and community level). Additionally, the use of interpreter services was shown to be an effective strategy for Pacific communities with language issues. Thus, future studies should devote attention to assessing the economic costs and benefits of interpreter services in regard to CCS outcomes (including follow-up care and treatment) and the sustainability of engaging local community interpreters (Dang et al., 2010).

Moreover, the review shows that enhanced knowledge and awareness of cervical cancer risk factors and the availability of screening options could increase CCS uptake by Pacific women. Nonetheless, Kelly-Hanku, Newland, Aggleton, Ase, Fiya et al., (2019), has pointed out that further work is needed to look into how comprehensive health education and communication strategies can be developed to improve the awareness level of women in PNG. Also, further exploration is needed to identify what communities might benefit from social support interventions, given that some ethnic groups' ways of belief and attitudes differ from other Pacific Islanders (Mouptapa et al.,

2016). In addition, there is a lack of ethnic-specific research in the Melanesian countries, although Melanesians have high cervical cancer rates in the Pacific context; more research is needed to understand the influence of social support strategies in PNG and other Melanesian countries.

5.6 Strengths and limitations

The narrative review was limited by the lack of studies on the topic in the Pacific region. Therefore, a range of sources was preferred, given the paucity of literature. Because a range of sources was reviewed, it was difficult to compare and contrast methodological rigour or eliminate bias in the analysis of different methods or approaches. Despite these limitations, narrative reviews recur within the literature as they offer breadth of literature coverage and flexibility in dealing with evolving knowledge and concepts (Byrne, 2016). Hence, this narrative review was able to identify and examine the key barriers and facilitators that determine CCS uptake by PNG and Pacific women. The findings of the review and the gaps identified can inform policy makers in PNG and the wider Pacific in addressing the cervical cancer burden effectively.

5.7 Conclusion and recommendation

In conclusion, this study has highlighted the barriers to and facilitators of CCS uptake in the Pacific. It has also discussed the cervical cancer risk factors, CCS methods that are currently available worldwide and global literature from global perspectives on barriers to and facilitators of CCS uptake. Lack of awareness and understanding has been a notable barrier associated with low CCS uptake, based on the global literature and also the current findings. Nonetheless, this study has also found other significant barriers including: cultural-religious taboos and practices; concerns about indirect costs of CCS uptake and poor socio-economic status; suboptimal healthcare delivery; and geographical impediments limiting access to CCS services. These findings highlight the urgent need to address factors beyond individual knowledge and attitudes influencing Pacific women's CCS behaviour.

CCS services need to be responsive to the needs and circumstances of Pacific women while recognising the direct and indirect barriers to CCS uptake. For Pacific women to

disregard their inherent priorities in their communities is impractical. Possible approaches would include integrated outreach programmes, bilingual translator services, accessible and affordable CCS options, good patient–staff rapport, and consistent funding to sustain CCS services. Future studies should assess the actual availability, accessibility, affordability, and acceptability of CCS methods through a wider understanding of contextual factors. In addition, future studies should investigate the factors that can facilitate CCS uptake. Moreover, policy makers need to work collaboratively with multi-level developmental partners and governmental bodies to reinforce strategic planning and strategies to minimise barriers and strengthen approaches that suit and facilitate CCS uptake by Pacific women.

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Appendix

Authors	Title	Study design	Location and participants	Identified barriers	Identified facilitators	Recommendations
Elia, C. R., & Devine, S. (2018).	Barriers and enablers for cervical cancer screening in the Pacific: A systematic review of the literature	Systematic review	Pacific and PNG women	Barriers Lack of women's knowledge. Lack of health facilities for screening diagnosis and treatment. Lack of healthcare workers' knowledge and experiences. Cultural beliefs. Financial issues. Limited access	Facilitators Access to education and cervical cancer screening. Availability of cervical cancer screening services Trained health workers	Applying knowledge learnt from LIC will be useful.
McPherson, G. S., Fairbairn-Dunlop, P., & Payne, D. (2019).	Overcoming barriers to cervical screening among Pacific women: A narrative review	Narrative review	Pacific women	Barriers Lack of knowledge and education Cultural beliefs and attitudes. Fear, cost, and negative healthcare experiences	Facilitators Adequate knowledge and education Good healthcare experiences	Research on women's experience of navigating colposcopy services
Kelly-Hanku, A., Newland, J., Aggleton, P., Ase, S., Fiya, V., Aeno, H., . . . Vallely, A. J. (2019b).	Health communication messaging about HPV vaccine in Papua New Guinea	Qualitative study Gender specific	Goroka, Mt. Hagen and Milne Bay (PNG) (n=208)	Barriers Cultural taboos of discussing sex and sexual organs. Negative perceptions of HPV vaccines. Fear of past negative experiences. Poor language	Facilitators Gendered education. Sexual health education integrated into school curriculum in PNG	Collaboration with communities to develop culturally appropriate HPV and cervical cancer materials to target right audience

				translations. Fear of stigma and blame of having cervical cancer		
Kelly-Hanku, A., Ase, S., Fiya, V., Toliman, P., Aeno, H., Mola, G. M., . . . Vallely, A. J. (2018).	Ambiguous bodies, uncertain diseases: Knowledge of cervical cancer in Papua New Guinea	Qualitative research Mixed method in collecting data	Goroka, Mt. Hagen and Milne Bay (PNG) (n=208)	Barriers Cultural and taboo discussing reproductive organs. Lack of biomedical knowledge and understanding of cervical cancer disease. Language		Development of culturally relevant health promotion materials
Obel, J., McKenzie, J., Souares, Y., Hoy, D., Roth, A., Buenconsejo-Lum, L. E., . . . Kjaer, S. K. (2015).	Mapping HPV vaccination and cervical cancer screening practice in the Pacific Region- Strengthening national and regional cervical cancer prevention	Cross-sectional	Pacific Island Countries and Territories (PICTs)Ministry of Health officials (n=21)	Barrier Lack of sustainable financing programmes. Lack of national monitoring mechanism. Lack of clear guidelines and policies		A regional coordinated effort to target cancer burden in the Pacific
Moultapa, M., Park Tanjasiri, S., Wu Weiss, J., Sablan-Santos, L., DeGuzman Lacsamana, J., Quitugua, L., . . . Tui'one May, V. (2016).	Associations between women's perception of their husbands'/partners' social support and Pap screening in Pacific Island communities	Cross-sectional study	Samoa, Chamorro, and Tongan women and their spouse (n=585)		Facilitators Collective interventions of health education. Social support from the family members and husbands	Include social support services into intervention
Foliaki, S., & Matheson, A. (2015).	Barriers to cervical screening among Pacific	Qualitative	New Zealand based Pacific women	Barriers Difficult funding environment and limited	Facilitators Pacific health practitioner. Adequate	Culturally appropriate healthcare providers. Outreach services.

	women in a New Zealand urban population.	Semi-structured interviews	(including Samoa, Tonga, Cook Islands, Fiji, Niue, Tokelau, Kiribati and Tuvalu) (n=20)	resources. Lack of skilled practitioners and poor staff attitude. Employment circumstances. Lack of information on screening Cultural barriers. Costs and socio-economic factors	resources and funding services. Outreach screening services	Opportunity based health checks.
Townsend, J. S., Stormo, A. R., Roland, K. B., Buenconsejo-Lum, L., White, S., & Saraiya, M. (2014).	Current cervical cancer screening knowledge, awareness, and practices among US affiliated Pacific island providers: opportunities and challenges	Cross-sectional	Healthcare providers from five U.S affiliated Pacific Island jurisdiction (USAPIJ) (n=72)	Barriers Cost associated with screening. Lack of knowledge and practices on the emerging technologies. No technological resources for screening		Evidenced based cost-effective strategy for screening (HPV point of care self-sampling)
Sligo, F., Jameson, A., & Comrie, M. (1998).	New Zealand Polynesian women's access to information about cervical screening	Qualitative face-to-face interview	New Zealand Tongan, Fijian, Samoan, Tokelauan, one Cook Islander Papua New Guinean. (n=20)	Barriers Cultural sensitivity of discussing cervical cancer topic. Confidentiality issues. Religious beliefs on seeking God first rather than taking cervical screening	Facilitators Collectivistic approach. Language specific and context specific symbols	Collective approach of health promotion intervention
Mishra, S. I., Luce, P. H., & Baquet, C. R. (2009).	Community-based participatory randomised control trial		Samoan women (n=398)		Facilitators Community-based culturally tailored education programme. Language specific. Local translator services	Reinforce or extend education session may increase knowledge of Samoan women

Jameson, A., Sligo, F., & Comrie, M. (1999).	Barriers to Pacific women's use of cervical screening services	Qualitative face-to-face interview	Tongan, Fijian, Samoan, Tokelauan, Cook Islander and Papua New Guinean. (n=20)	Barriers Culturally associated stigma and embarrassment. Confidentiality issues. Fear of unknown outcome. Competing roles. Language barriers	Facilitators Health education in community group meetings. Female health advocator. Language specific	Culturally tailored health awareness. Healthcare provider to consider ethical principles
Aitaoto, N., Tsark, J. U., Tomiyasu, D. W., Yamashita, B. A., & Braun, K. L. (2009).	Strategies to increase breast and cervical cancer screening among Hawaiian, Pacific Islander, and Filipina women in Hawai'i	Qualitative face-to-face interview (5 FGD)	Native Hawaiian, Filipino women, Marshallese Chuukese women (n=33)	Barriers Limited understanding of cervical cancer. Competing priorities. Transportation issues. Interference of cultural belief. Fear of bad news	Facilitators Lay education programmes. Church integrated outreach programmes. Culturally tailored health education and language specific	Provide outreach services
Lovell, S., Kearns, R. A., & Friesen, W. (2007).	Sociocultural barriers to cervical screening in South Auckland, New Zealand	Qualitative interview	Pacific, Māori, Pākehā, Asian, Korean (n=25)	Barriers Culturally associated embarrassment. Language barriers. Poor socio-economic circumstances		Culturally relevant approaches to screening
Naidu, S., Heller, G. Z., Qalomaiwasa, G., Naidu, S., & Gyaneshwar, R. (2016).	Knowledge, attitude, practice and barriers regarding cervical cancer and its screening using Pap smear, in rural women of Ba, Lautoka and Nadi, Fiji	Cross-sectional	Ba, Lautoka and Nadi, in Fiji. (n=1494)	Barriers Lack of knowledge of pap smear testing. Fear of the procedure. Limited access. Poor socio-economic status		Offering accessible screening services. Reproductive health awareness in schools. Rural outreach services are mandated.
Dang, J., Lee, J., Tran, J. H., Kagawa-Singer,	The role of medical interpretation on breast and cervical cancer	Cross-sectional	Pacific Islanders and Asian Americans	Barriers Language barriers between the healthcare		Language-specific interpreter services

M., Foo, M. A., Nguyen, T.-U. N., . . . Tanjasiri, S. P. (2010).	screening among Asian American and Pacific Islander women			providers and the client. Lack of interpreter services		
Wu, L., Colby, E., Iongi-Filiaga, A., & Maskarinec, G. G. (2010).	American Samoan women's health: Experiences and attitudes toward breast and cervical cancer screening	Open -ended ethnographic study	American Samoan women (n=55)	Barriers Negative healthcare experiences including poor staff attitudes. Culturally associated traditional beliefs.		Outreach awareness and screening services
Tran, J. H., Moultapa, M., Ichinose, T. Y., Pang, J. K. a., Ueda, D., & Tanjasiri, S. P. (2010).	Sources of information that promote breast and cervical cancer knowledge and screening among native Hawaiians in Southern California.	Cross- sectional Study	Native Hawaiian women (n=200)		Facilitators Health insurance. Doctors' advice. Internet usage to obtain medical advice. Education attainment	Comprehensive public health interventions
Tanjasiri, S. P., Moultapa, M., Sablan-Santos, L., & Quitugua, L. F. (2012).	What promotes cervical cancer screening among Chamorro women in California	Cross- sectional	Chamorro women (n=404)		Facilitators Health insurance coverage. Adequate knowledge of cervical screening frequency.	Active male involvement in strengthening cervical cancer screening uptake Culturally consistent approach
DiStefano, A. S., Hui, B., Barrera- Ng, A., Quitugua, L. F., Peters, R., Dimaculangan, J., . . . Tanjasiri, S. P. (2012).	Contextualization of HIV and HPV risk and prevention among Pacific Islander young adults in Southern California	Mixed-method community- based participatory research	Tonga, Chamorro, Guam (n=97)	Barriers Lack of community knowledge. Cultural restrictions of discussing sex. Shame and confidentiality. Religious beliefs and misperceptions.		Community-based health promotion interventions

				Language barriers. Socio-economic barriers, cost, and limited access.		
Rosario, A. M. (2010).	Meeting Chamorro women's health care needs: Examining the cultural impact of Mamahlao on gynaecological Screening	Qualitative research Semi-structured interview	Chamorro (n=15)	Barriers Culturally enacted shame and stigma associated with cervical screening		Clear and concise awareness message while maintaining cultural sensitivity
Hubbell, F. A., Luce, P. H., & McMullin, J. M. (2005).	Exploring beliefs about cancer among American Samoans: Focus group findings	Qualitative research Focus group discussion	Samoan men and women (n=80)	Barriers Limited understanding of cervical cancer disease and cancer prevention practices		Culturally tailored health awareness
Weiss, J. W., Mouttapa, M., Sablan-Santos, L., DeGuzman Lacsamana, J., Quitugua, L., & Park Tanjasiri, S. (2016).	Decision making for Pap testing among Pacific Islander women	Community-based participatory research (CBPR)	Chamorro, Samoan, Tongans (n=585)	Barriers Feeling embarrassed. Feeling discomfort. Fear of negative consequences	Facilitators Protecting the family. Early detection of cervical cancer and peace in mind	Identifying the concerns that influence adherence to what health professionals view as routine recommendations may enable more effective implementation.
Tanjasiri, S., Mouttapa, M., Santos, L., Weiss, J., Chavarria, A., Lacsamana, J., . . . Schmidt-Vaivao, D. (2019)	Design and outcomes of a community trial to increase Pap testing in Pacific Islander women	Community-based randomised intervention trial	Chamorro, Samoan, Tongans (n=100)		Facilitators Men's social support for wives	Community-based social support education awareness