

Cervical screening uptake: A cross-sectional study of self-reported screening attitudes, behaviours and barriers to participation among South Asian immigrant women living in Australia

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Abstract

Introduction: Cervical cancer remains a major cause of morbidity and mortality among women from low and lower middle-income countries, as well as underserved population subgroups in high-income countries. Migration from South Asia to Australia has increased over the last decade, and immigrant women from this region have been reported as a subgroup, with less than optimal cervical screening participation in Australia. This study examined cervical screening uptake and associated behavioural attitudes among South Asian immigrant women living in Queensland Australia.

Methods: A cross-sectional, Internet-based survey was used to collect data from a convenience sample of 148 South Asian women living in Queensland. The main outcome measure was receipt of cervical screening test ever (yes/no) and its recency (within 2 years/more than 2 years). The survey also examined participants' views on barriers towards screening and ways to enhance it.

Results: Of 148 women who completed the survey, 55.4% (n=82) reported ever having a cervical screening test before and 43.9% (n=65) reported having it in previous two years. Not having a previous cervical screening test was significantly associated with duration of stay in Australia for less than five years, not having access to a regular general practitioner (GP), not being employed, having low cervical cancer knowledge level and not knowing if cervical screening test is painful or not. Most commonly reported barriers to screening uptake included considering oneself not at risk, lack of time and lack of information. The most favoured strategy among participants was encouragement by GP and awareness through social media advertisements.

Conclusion: This study provided insights into factors that need consideration when developing future targeted interventions.

Keywords

Australia, barriers, cervical cancer, immigrants, screening test

Date received: 25 October 2021; revised: 15 March 2022; accepted: 5 April 2022

Introduction

Cervical cancer is the fourth most common cause of cancer-related deaths among women worldwide, with more than half a million (604,127) new cases and more than quarter of a million (341,831) deaths in 2020.¹ In many countries, advancements in cervical cancer prevention and early detection through vaccination and screening programmes have led to a decrease in mortality and improvements in survival

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outcomes.² Despite these preventive achievements, certain population subgroups still underutilise cervical cancer immunization and screening.^{3,4} Among these are immigrant and refugee women, who often lack access to cervical cancer preventive programmes in their home countries.^{1,5} Research suggests that when these individuals migrate, their uptake of screening remains low.⁵

Being a multicultural country, Australia is an avid supporter of overseas migration.⁶ According to the Australian Bureau of Statistics,⁷ nearly 29% of the overall population of Australia was born overseas, and more than 50% have one or more overseas-born parents. A recent systematic review reported that compared with Australian-born women, immigrant women born in regions such as South Asia, Africa and Southern Europe have lower cervical screening uptake.⁸ The proportion of immigrants arriving from Southern Asia has increased from 20% in 2008–2009 to 29% in 2018–2019 and South Asian immigrants now account for a large share of Australia's immigration intake,⁹ including individuals born in India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, Maldives as well as Fijian Indians and Anglo Indians.¹⁰ Studies indicate that women born in these countries have particularly low uptake of cervical screening, compared with immigrant women from other backgrounds living in Australia.^{11,12} Evidence on cervical screening attitudes and behaviours among Australian immigrant South Asian women is scarce, representing a significant gap in literature. Research to understand these factors and how they affect screening access and uptake is warranted.

Australia's national cervical screening programme, recommending a Pap smear for women aged 18–75 years every 2 years, has been active since 1991. The programme was renewed in 2017, replacing the Pap test with a primary human papillomavirus (HPV) screening test, conducted every 5 years for women aged 25–74 years.¹³ The present study aimed to assess the prevalence of cervical screening attitudes and uptake behaviours among South Asian immigrant women, as well as behavioural barriers perceived by them.

Methods

Study design and setting

This cross-sectional study consisted of a community-based online survey for South Asian women living in Queensland, Australia and was conducted during May–September 2019. Women were recruited via snowball sampling, through distribution of flyers, with an embedded link to the survey, via social media sites such as Facebook and Twitter, postings on pages designated for multicultural organizations and those used by immigrant women, as well as University websites and word of mouth. Flyers were also distributed at local community

centres and community organizations working with migrants. Ethical approval for the study was obtained from the Human Research Ethics Committee, The University of Queensland (Approval no: 2018001749). As this was an anonymous survey study, according to our research ethics guidelines, online consent was obtained. Women read the participant information and consent form, and their consent was obtained by agreeing to the following statement: 'If you are willing to participate, please continue with the survey. Navigating to the "Next page" will take you to the survey'.

Participants

Women aged 20–75 years, who fulfilled the criteria of being an 'immigrant', as defined by the Australian Bureau of Statistics (living in Australia for one year or more), with South Asian background, able to understand and read English and living in Queensland were included. For determining South Asian background, the standard Australian classification of cultural and ethnic groups was used.¹⁰ Second-generation immigrant women (born in Australia, with parents born in South Asian countries) and those with history of cervical cancer or hysterectomy were excluded. Although the current cervical screening programme is applicable to women aged 25–75 years, we wanted to understand the behaviours and attitudes of women who may have taken the Pap test previously or of those eligible in other countries with different age limits, thus women aged 20–75 years were included.

Data collection and survey measures

The survey was administered online using the REDCap platform. Cervical screening uptake was the main behavioural outcome of interest, as were factors associated with uptake such as sociodemographic and healthcare access characteristics, education and knowledge. Behaviour was assessed using a sequence of three questions from participants: Had they ever taken a cervical screening test previously (yes/no). For those that answered yes, follow on questions assessed, whether the cervical screening test had been taken in Australia or their home country (yes, no) and the recency (within the last 2 years or more than 2 years).

Questions assessing sociodemographic characteristics were based on standardized surveys used by Australian Bureau of Statistics, with the responses categorized for purpose of analysis (refer to supplemental material Section A: Questionnaire). These included age (<30 years, 30–49 years and 50 years and above), country of birth, duration of stay in Australia (<5 years, 5–10 years, and >10 years), language spoken at home, English language proficiency (very well, well or not well), religion (Hinduism, Buddhism, Islam, Christianity, Others), educational level (primary, secondary, tertiary), sexual activity status (yes, no, prefer

not to say), marital status (single, married/partnered or divorced/separated), number of children (none, two or less, or 3 or more) and employment status (employed, unemployed or student). Healthcare utilization questions included access to Medicare (health insurance covered by the Australian government), regular general practitioner (GP) and private health insurance (yes/no for each).

Knowledge. Cervical cancer and HPV knowledge were measured through validated questionnaires from previous studies, to study their association with cervical screening behavioural uptake. HPV knowledge was measured through HPV knowledge measure (Cronbach's alpha: 0.83, test retest reliability: 0.79) with an overall score ranging from 0 to 16, whereas cervical cancer knowledge was measured with cervical cancer awareness measure (Cronbach's alpha: 0.84, test retest reliability: 0.77) with an overall score ranging from 0 to 20.^{14,15} For the purpose of this analysis, each score was further classified into three categories (HPV knowledge level: low: 1–5, medium: 6–10, high: 11–16) and (cervical cancer knowledge level: low: 1–5, medium: 6–12 and high: 13–20).

Attitudes and perceived barriers. Based on an extensive literature search,^{16–23} a list of 16 factors that could be responsible for lower cervical screening participation in South Asian immigrant women was compiled to assess participants' views (yes, no, don't know) (refer to supplemental material Section A: Questionnaire). These factors were classified according to the constructs of Capability Opportunity Motivation-Behaviour (COM-B) model,²⁴ which posits that there are three key domains affecting behaviour change: capability, opportunity and motivation.

Barriers affecting capability (physical or psychological ability to perform an action) were assessed via three items: Not having enough information about the test; Not having information in native language about the test; and Not being able to make health-related decisions themselves. Barriers towards opportunity (external factors affecting behaviour) were assessed through six items: Lack of transport to attend screening; Not having enough time from work, kids, and chores to go to the doctor for the test; Not having support from husband/partner; Not having support from other family members (parents, in laws); Not having access to free healthcare services (Medicare or Private health insurance); Lack of availability of female doctor to get the test done. Barriers towards motivation (internal thought processes governing behaviour) were assessed by seven items: Not considering oneself at risk of getting cervical cancer; Being afraid of finding positive results; Considering test embarrassing; Considering test painful; Not trusting the test; Believing that screening test is against one's religious beliefs; and Having had a previous bad experience. All provided the answer options of 'yes, no or don't know'.

Ways to enhance screening. Participants were also asked about the best ways to reach women with information and support for increasing cervical screening uptake, including seven items (refer to supplemental material Section A: Questionnaire): Advertisements on social media like Facebook and Twitter; Brochures and pamphlets from the Government; Reminders at the local community gatherings by the local leaders; Encouragement from the GP/other health professionals; Reminders through mobile phone text messages; Information written in the native language; and Other.

The survey was tested through a pilot study for clarity, cultural appropriateness, comprehension and time taken to complete, by eight participants of South Asian background, who were not part of the main study. Based on their feedback, the survey was shortened and revised before use.

Sample size calculations

Based on the 2016 Census of Population and Housing, the overall population of South Asian immigrants in Queensland in 2016 was more than 114,000 (43% women in the desired age range).²⁵ Since the precise proportion of South Asian immigrants who take part in cervical cancer screening is not known, to ensure maximum variability it was assumed to be 50% (compared with 56% in Australian women). Working with confidence interval (CI) of 95%, margin of error of 8%, a sample size of 150 was required to obtain results with a confidence margin of 8%.²⁶

Statistical analysis

Data were analysed using R statistical software version 4.0.2.²⁷ Descriptive statistics summarized sociodemographic and healthcare characteristics, cervical screening uptake and recency, barriers and strategies in frequencies and percentages. Chi-square and fisher exact tests, as appropriate, were used to determine sociodemographic, healthcare utilization and knowledge factors as well as barriers associated with reported participation in cervical cancer screening. It was followed by conduction of multivariate logistic regression to determine factors independently contributing to screening uptake. Stepwise backward elimination of variables was done starting from the variable with the highest p value, and stopping when only variables with statistically significant associations remained.²⁸ For all tests, p value < 0.05 was considered statistically significant.

Results

Characteristics of participants

Overall, 200 women clicked the link to the survey, and 159 completed it, thus giving a response rate of 79.5%. After

excluding responses with missing data and entries from women with non-South Asian background, 148 participants remained for analysis. Participants' age ranged between 20 and 64 years (mean = 35, SD = 7.58), with 55.6% between 30 and 39 years. Participants were predominantly from India (34.5%), Pakistan (31.8%) and Sri Lanka (13%). The language spoken most commonly by the participants was Urdu (35.1%) or Hindi (12.8%). The religion practised by the majority of participants was Islam (50.7%) or Hinduism (23.7%). The majority women reported being married (84.5%) and sexually active (75%). Nearly half of the women had two children (48.6%), while 35.1% reported having no children. About half of the women were employed (48%) and reported being able to communicate in English very proficiently (55.4%). The majority of women had access to Medicare (80.4%), private health insurance (51.4%) and had a regular GP (79.7%). Less than half of the participants had high HPV knowledge (25.7%) and cervical cancer knowledge (39.9%) levels based on the HPV knowledge measure and cervical cancer awareness measure scores.

Cervical screening uptake and associated factors

Nearly half of the participants (55.4%) had taken a cervical cancer screening test previously, with 43.9% having taken the test within the last 2 years (Table 1). Factors found to be associated with cervical screening uptake (ever) through bivariate analysis were entered into multivariate analysis. It indicated that participants living in Australia for 5–10 years (odds ratio (OR): 4.61; 95% CI: 1.35–17.28) or more than 10 years (OR: 8.58; 95% CI: 2.32–37.27) compared with those living for less than 5 years were more likely to be screened in the past. Women who were unemployed (OR: 0.17; 95% CI: 0.05–0.58) compared with employed, with lack of access to regular GP (OR: 0.06; 95% CI: 0.008–0.34) compared with those with access, or with low cervical cancer knowledge level (OR: 0.25; 95% CI: 0.07–0.81) compared with those with high knowledge level were less likely to be screened. Women who did not know if the cervical screening test was painful (OR: 0.03; 95% CI: 0.004–0.11) compared with those not considering it painful were also less likely to be screened.

Perceived barriers and ways to enhance screening awareness

The most common barriers to cervical cancer screening reported by participants were low risk perception (75.7%), being afraid of the test (44.6%), not having information about the test (37.8%) and lack of time due to work, childcare and home duties (37.2%) (Table 2). Although the majority of participants trusted the test (75%), about one third (24%) considered it embarrassing or painful. Other

commonly reported barriers included lack of access to free healthcare covering cost of the test (15.5%) and not having information about the test in native language (14.4%).

Awareness-raising strategies most favoured by participants included support and encouragement from GPs (33%), followed by spread of awareness through social media portals (25%), and reminders through mobile text messages (18%), whereas awareness raising at local community gatherings by community leaders (2.7%) was least favoured (Table 3). Some responses contributed by the participants choosing the option 'other', included campaigning at workplaces and offices, discussion among friends, illustrative sessions in native language, and awareness programmes at school level.

Discussion

This study focused on cervical screening uptake and the associated attitudes and barriers in South Asian immigrant women in Australia. Key findings depict that although the majority of the women in this survey were highly educated, had lived in Australia for 5 years or longer and had access to Medicare and a regular GP, almost half reported they had never had a cervical cancer screening test, and two thirds considered themselves not at risk of developing cervical cancer.

The rate of having cervical screening ever (55.4%) for South Asian women in this study is comparatively lower than the 67%–93% reported for immigrant women from other backgrounds such as Vietnamese, Chinese, African, former Yugoslavia, Thailand and Middle Eastern women in Australia.⁸ Cervical screening uptake rates studied in South Asian immigrant women in other high and upper-middle income countries like the United States (32%–44%), United Kingdom (67%), Canada (25%), Hong Kong (36%) and Malaysia (19%) have also been found to be lower than those of the general population in these countries.^{22,29–32} Self-reported biennial cervical screening uptake among the survey participants (43.9%) was also lower than the 2016–2017 rates (56.1%) among overall Australian women reported in the 2019 cervical screening report by the Australian Institute of Health and Welfare,³³ although this may in part be caused by the change to a 5-year screening interval within the renewed programme. Self-reported cervical screening rates for Australian women (both immigrant and non-immigrant) through surveys are commonly 9%–19% higher than those evident from cancer screening registries,^{34,35} suggesting that women may have overreported screening uptake due to recall or social desirability bias.

Duration of stay, found to be strongly associated with cervical screening uptake in this study, was also one of the significant predictors in other studies conducted among immigrant women in Australia, as well as South Asian immigrant women in other countries.^{36–39} It implies that

Table 1. Sociodemographic, health utilization and knowledge factors associated with cervical screening among study participants.

Cervical screening participation		Screened n=82 (55.4%)	Unscreened n=66 (44.6%)	χ^2 (p value)	OR (95% CI), p value	
Characteristic	Univariate				Multivariate	
Age groups						
Age group 1 (<30 years) (n=37)	9 (24.3)	28 (75.7)	$\chi^2=22.2$, p<0.0001*	0.21 (0.08–0.48), 0.003*		
Age group 2 (30–39 years) (n=82)	50 (61.0)	32 (39.0)		1.00		
Age group 3 (40 years & above) (n=29)	23 (79.3)	6 (20.7)		2.45 (0.95–7.23), 0.08		
Educational level						
Secondary (n=22)	14 (9.5)	8 (5.4)	$\chi^2=5.14$, p=0.02*	0.60 (0.27–1.30), 0.2		
Tertiary (n=126)	68 (54.0)	58 (46.0)		1.00		
Country of birth						
Indian (n=51)	35 (68.6)	16 (34.4)	$\chi^2=8.98$, p=0.03*	1.00		
Pakistani (n=47)	25 (53.2)	22 (46.8)		0.52, (0.23–1.28), 0.1		
Sri Lankan (n=20)	6 (30.0)	14 (70.0)		0.20 (0.06–0.58), 0.005*		
Others (n=30)	16 (53.3)	14 (46.7)		0.52 (0.20–1.32), 0.2		
Duration of stay in Australia						
<5 years (n=60)	15 (25.0)	45 (75.0)	$\chi^2=35.67$, p<0.0001*	1.00		1.00
5–10 years (n=41)	29 (70.7)	12 (29.3)		7.25 (3.05–18.29), <0.01*		4.61 (1.35–17.28), 0.02*
>10 years (n=47)	38 (80.9)	9 (19.1)		12.67 (5.18–33.8), <0.01*		8.58 (2.32–37.27), 0.002*
Ability to speak English						
Very well (n=82)	51 (62.2)	31 (37.8)	Fisher's exact test p=0.14	1.00		
Well (n=61)	28 (45.9)	33 (54.1)		0.52 (0.26–1.00), 0.05		
Not well/Not at all (n=5)	3 (0)	2 (100.0)		0.91 (0.14–7.21), 0.9		
Native language						
Urdu (n=52)	29 (54.7)	24 (45.3)	$\chi^2=18.62$, p=0.002*	1.00		
Hindi (n=19)	14 (73.7)	5 (26.3)		2.32 (0.76–8.01), 0.2		
Bengali (n=13)	10 (76.9)	3 (23.1)		2.76 (0.74–13.35), 0.2		
Sinhalese (n=15)	3 (20.0)	12 (80.0)		0.20 (0.04–0.74), 0.02*		
Nepalese (n=10)	2 (20.0)	8 (80.0)		0.20 (0.03–0.92), 0.06		
Other (Telugu, Tamil, Gujarati, Malayalam, Punjabi, Kannada, Sindhi, English) (n=34)	24 (63.2)	14 (36.8)		1.14 (0.61–3.37), 0.4		
Religion						
Islam (n=75)	44 (58.7)	31 (41.3)	$\chi^2=7.67$, p=0.05	1.00		
Hinduism (n=35)	22 (62.9)	13 (37.1)		1.2 (0.53–2.77), 0.7		
Buddhism (n=14)	3 (21.4)	11 (78.6)		0.19 (0.04–0.67), 0.02*		
Others (Sikhism, Christianity, Atheism, Prefer not to say) (n=24)	13 (54.2)	11 (45.8)				

(Continued)

Table 1. (Continued)

Cervical screening participation		Screened n = 82 (55.4%)	Unscreened n = 66 (44.6%)	χ^2 (p value)	OR (95% CI), p value Univariate	OR (95% CI), p value Multivariate
Employment status						
Employed (n = 71)	52 (64.8)	19 (35.2)	$\chi^2 = 22.42$, p < 0.001*	1.00	1.00	1.00
Unemployed (n = 39)	20 (30.8)	19 (69.2)		0.38 (0.17–0.87), 0.02*	0.17 (0.05–0.58), 0.006*	
Student (n = 38)	10 (57.9)	28 (42.1)		0.13 (0.05–0.31), < 0.01*	0.33 (0.07–1.42), 0.1	
Marital status						
Single (n = 12)	2 (16.7)	10 (83.3)		0.14 (0.02–0.57), 0.01*	0.14 (0.02–0.57), 0.01*	
Married/partnered (n = 125)	73 (58.4)	52 (41.6)	Fisher's exact test	1.00	1.00	
Separated/divorced (n = 11)	7 (63.6)	4 (36.4)	P = 0.02*	1.25 (0.26–4.96), 0.73		
Sexually active						
Yes (n = 111)	69 (62.2)	55 (37.8)	$\chi^2 = 8.75$, p = 0.01*	1.00	1.00	
No (n = 23)	7 (30.4)	8 (69.6)		0.27 (0.10–0.68), 0.007*	0.27 (0.10–0.68), 0.007*	
Prefer not to say (n = 14)	6 (42.9)	5 (57.1)		0.46 (0.14–1.40), 0.2	0.46 (0.14–1.40), 0.2	
Parity						
None (n = 52)	16 (30.8)	36 (69.2)	$\chi^2 = 21.1$, p < 0.01*	1.00	0.17 (0.08–0.38), < 0.001*	
2 or less (n = 72)	52 (72.2)	20 (27.8)		1.00	1.00	
3 or more (n = 24)	14 (58.3)	10 (41.7)		0.54 (0.21–1.43), 0.2	0.54 (0.21–1.43), 0.2	
Access to Medicare card						
Yes (n = 119)	77 (64.7)	42 (35.3)	$\chi^2 = 21.26$, p < 0.01*	1.00	1.00	
No (n = 29)	5 (17.2)	24 (82.8)		0.11 (0.04–0.30), < 0.001*	0.11 (0.04–0.30), < 0.001*	
Access to regular GP						
Yes (n = 125)	78 (62.4)	47 (37.6)	$\chi^2 = 10.44$, p < 0.01*	1.00	1.00	
No (n = 23)	4 (17.4)	19 (82.6)		0.13 (0.04–0.36), < 0.001*	0.06 (0.008–0.34), 0.002*	
Access to private health insurance						
Yes (n = 78)	39 (50.0)	39 (50.0)	$\chi^2 = 1.95$, p = 0.2	1.00	1.00	
No (n = 70)	43 (61.4)	27 (38.6)		1.59 (0.83–3.08), 0.2		
Cervical cancer knowledge level						
Low (n = 44)	16 (36.4)	28 (63.6)	$\chi^2 = 9.24$, p = 0.01*	1.00	0.32 (0.14–0.70), 0.005*	0.25 (0.07–0.81), 0.02*
Medium (n = 45)	28 (63.2)	17 (37.8)		0.91 (0.41–2.05), 0.8	1.24 (0.36–4.50), 0.7	
High (n = 59)	38 (64.4)	21 (35.6)		1.00	1.00	
HPV knowledge level						
Low (1–5)(81)	36 (44.4)	45 (55.6)	$\chi^2 = 10.79$, p = 0.005*	1.00	1.00	
Medium (6–10)(29)	17 (58.6)	12 (41.4)		1.77 (0.76–4.26)		
High (11–16)(38)	29 (76.3)	9 (23.7)		4.03 (1.75–10.03), 0.002*		

(Continued)

Table 1. (Continued)

Cervical screening participation		Screened n = 82 (55.4%)	Unscreened n = 66 (44.6%)	χ^2 (p value)	OR (95% CI), p value	
Characteristic					Univariate	Multivariate
Lack of information						
Yes (n = 56)	19 (33.9)	37 (66.1)	$\chi^2 = 23.79$, p < 0.001*	0.20 (0.09–0.41), < 0.001*		
No (n = 86)	62 (72.1)	24 (27.9)		1.00		
Don't know (n = 6)	1 (16.7)	5 (83.3)		0.08 (0.004–0.51), 0.02*		
Lack of information in native language						
Yes (22)	13 (59.1)	9 (40.9)	$\chi^2 = 5.45$, p = 0.07	1.05 (0.42–2.75), 0.9		
No (116)	67 (57.8)	49 (42.2)		1.00		
Don't know (10)	2 (20.0)	8 (40.0)		0.18 (0.03–0.77), 0.04*		
Lack of decision making power						
Yes (n = 3)	2 (66.7)	1 (33.3)	Fisher's exact test p = 0.01*	1.45 (0.16–31.64), 0.8		
No (n = 138)	80 (58.0)	58 (42.0)		1.00		
Don't know (n = 7)	0 (0.0)	7 (100.0)		NA		
Lack of transport						
Yes (n = 6)	3 (50.0)	3 (50.0)	Fisher's exact test p = 0.2	1.36 (0.24–7.57), 0.7		
No (n = 132)	76 (57.6)	56 (42.4)		1.00		
Don't know (n = 10)	3 (30.0)	7 (70.0)		0.43 (0.05–3.51), 0.4		
Lack of time						
Yes (n = 55)	30 (54.5)	25 (45.5)	$\chi^2 = 2.08$, p = 0.4	0.86 (0.43–1.71), 0.7		
No (n = 84)	49 (58.3)	35 (41.7)		1.00		
Don't know (n = 9)	3 (33.3)	6 (66.7)		0.36 (0.07–1.45), 0.2		
Lack of partner support						
Yes (n = 7)	3 (42.9)	4 (57.1)	Fisher's exact test p = 0.01*	0.52 (0.10–2.44), 0.4		
No (n = 132)	78 (59.1)	54 (40.9)		1.00		
Don't know (n = 9)	1 (11.1)	8 (88.9)		0.07 (0.005–0.49), 0.03*		
Lack of family support						
Yes (n = 5)	3 (60.0)	2 (40.0)	Fisher's exact test p = 0.04*	1.10 (0.18–8.52), 0.9		
No (n = 135)	78 (57.8)	57 (42.2)		1.00		
Don't know (n = 8)	1 (12.5)	7 (87.5)		0.10 (0.006–0.61), 0.04*		
Lack of free healthcare services						
Yes (n = 23)	7 (30.4)	16 (69.6)	$\chi^2 = 613.14$, p = 0.001*	0.26 (0.09–0.66), 0.006*		
No (n = 118)	74 (62.7)	44 (37.3)		1.00		
Don't know (n = 7)	1 (14.3)	6 (85.7)		0.10 (0.005–0.61), 0.04*		

(Continued)

Table 1. (Continued)

Cervical screening participation		Screened (55.4%) n = 82 (44.6%)		Unscreened n = 66 (44.6%)		χ^2 (p value)	OR (95% CI), p value Univariate	OR (95% CI), p value Multivariate
Characteristic								
Lack of female HCP								
Yes (n = 11)	7 (63.6)	4 (36.4)	Fisher's exact test	NA				
No (n = 122)	75 (61.5)	47 (38.5)	p < 0.001*					
Don't know (n = 15)	0 (0.0)	15 (100.0)						
Religious beliefs								
Yes (n = 2)	2 (100.0)	0 (0.0%)	Fisher's exact test	NA				
No (n = 138)	79 (57.2)	59 (42.8)	p = 0.02*					
Don't know (n = 8)	1 (12.5)	7 (87.5)						
Embarrassment								
Yes (n = 36)	22 (61.1)	14 (38.9)	$\chi^2 = 26.59$,	0.77 (0.34–1.75), 0.002*				
No (n = 85)	57 (67.1)	28 (32.9)	p < 0.0001*					
Don't know (n = 27)	3 (11.1)	24 (88.9)		0.06 (0.01–0.19), <0.001*				
Fear of pain								
Yes (n = 36)	26 (72.2)	10 (27.8)	$\chi^2 = 5, 3.13$	0.88 (0.26–2.24), <0.001*			1.03 (0.33–3.41), 0.9	
No (n = 71)	53 (74.6)	18 (25.8)	p < 0.0001*				1.00	
Don't know (n = 41)	3 (7.3)	38 (92.7)		0.03 (0.006–0.09), <0.001*			0.03 (0.004–0.11), <0.001*	
Fear of positive results								
Yes (n = 54)	30 (55.6)	24 (44.4)	$\chi^2 = 11.55$,	0.06 (0.36–2.23), 0.				
No (n = 66)	44 (66.7)	22 (33.3)	p = 0.03*					
Don't know (n = 28)	8 (28.6)	20 (71.4)		0.20 (0.006–0.07), 0.001*				
Lack of trust in the test								
Yes (n = 6)	4 (66.7)	2 (33.3)	Fisher's exact test	1.13 (0.2–8.38), 0.9				
No (n = 111)	71 (64.0)	40 (36.0)	p < 0.0001*					
Don't know (n = 31)	7 (22.6)	24 (77.4)		0.16 (0.06–0.40), <0.001*				
Lack of risk perception								
Yes (n = 36)	20 (55.6)	16 (44.4)	$\chi^2 = 0.0004$,	1.01 (0.47–2.17), 0.9				
No (n = 112)	62 (55.4)	50 (44.6)	p = 0.9					
Previous distressful experience								
Yes (n = 7)	7 (100.0)	0 (0.0)	Fisher's exact test	NA				
No (n = 141)	75 (53.2)	66 (46.8)	p = 0.02*					

*p < 0.05.

Table 2. Participants' responses to various barriers towards cervical screening.

Barriers and attitudes	Participants' responses n (%)		
	Yes	No	Don't know
Capability			
Not having information in native language about the test	22 (14.9)	116 (78.4)	10 (6.8)
Not having enough information about the test	56 (37.8)	86 (58.1)	6 (4.1)
I do not make decisions related to health in my family	3 (2.0)	138 (93.2)	7 (4.7)
Opportunity			
Lack of transport to go for the test	6 (4.1)	132 (89.2)	10 (6.8)
Not having enough time from work, kids and chores to go to the doctor for the test	55 (37.2)	84 (56.8)	9 (6.1)
Not having support from husband/partner to go for the test	7 (4.7)	132 (89.2)	9 (6.1)
Not having support from other family members (parents, parents in law) to go for the test	5 (3.4)	135 (91.2)	8 (5.4)
Not having access to free healthcare services (Medicare or private health insurance)	23 (15.5)	118 (79.7)	7 (4.7)
Female doctor is not available to get the test done	11 (7.4)	122 (82.4)	15 (10.1)
Motivation			
Having the screening test is against my religious beliefs	2 (1.35)	138 (93.2)	8 (5.4)
I find Pap test/HPV test embarrassing	36 (24.3)	85 (57.4)	27 (18.2)
I find Pap test/HPV test painful	36 (24.3)	71 (48)	41 (27.7)
I am afraid of finding positive test results	54 (36.5)	66 (44.6)	28 (18.9)
I do not trust the Pap test/HPV test to detect cervical cancer	6 (4.1)	111 (75)	31 (22.0)
Do you consider yourself at risk of getting cervical cancer?	36 (24.3)	112 (75.7)	0 (0)
Have you had any previous bad experiences while attending screening?	7 (4.7)	77 (52.0)	64 (43.2)

Table 3. Strategies preferred by participants for increasing cervical screening.

Ways to encourage and support cervical screening	Participants reporting n (%)
Advertisements on social media like Facebook and Twitter	37 (25.0)
Brochures and pamphlets from the Government	14 (9.5)
Reminders at the local community gatherings by the local leaders	4 (2.7)
Encouragement from the GP/other health professionals	49 (33.1)
Reminders through mobile phone text messages	27 (18.2)
Information written in your native language	13 (8.8)
Other (Campaigning at workplaces and offices, discussion among friends, illustrative sessions in native language, awareness programmes at school level)	4 (2.7)

the longer immigrants live in the migrated country, the more likely they are to screen for cervical cancer. Possible reasons could be acculturation and awareness of health services availability. In addition, recent immigrants may not have free healthcare coverage, as Medicare benefits in Australia are available only to immigrants who are permanent residents or citizens.

While most of the barriers examined were not significantly associated with screening uptake, multivariate analysis indicated that participants who did not know whether the cervical screening test can cause pain or not were less likely to be screened than those that considered the test painless. Research has established the link between beliefs around pain perception and test uptake in immigrant women previously, suggesting that having the perception that test can be painful can lead to reduced screening attendance.^{16,40,41} Elucidating the misconception of pain association with the test and encouraging women for self-directed options such

as HPV self-sampling method could be potentially helpful. Among the barriers most commonly reported by participants, it was evident that many women did not consider themselves at risk of cervical cancer. The possible reasons behind this need to be explored further as it could be of practical value in effective intervention planning. Busy life and lack of time were also suggested as other common reasons for not going for screening. Household chores, care for spouse and children, along with working hours could be the contributing causes, as suggested in various qualitative studies exploring screening barriers for South Asian immigrant women in other countries.^{16,22,42} These barriers imply that in addition to information provision through community based outreach programmes, steps need to be taken to break down the motivational as well as opportunity barriers.

Cervical cancer knowledge and access to a regular GP were other factors found to be significantly associated

with cervical screening in this study. Previous qualitative and quantitative studies on immigrants residing in Australia suggested that cervical cancer literacy plays an important role in screening uptake,^{43–46} and inadequate disease and screening awareness can undermine the willingness to participate in screening.⁴⁵ In addition, lack of recommendation by a healthcare provider can also influence cervical screening uptake.^{37,47} It is therefore probably not unexpected that encouragement and support from GP was the most commonly preferred approach to increase cervical screening among participants in this study. It is worthwhile to note that another study of Bhutanese refugee women in Australia suggested involvement of GP or group-based screening model to increase participation.⁴⁸

Nonetheless, how best to deliver brief interventions in GP practices that address needs and knowledge levels of immigrant women as well as their heterogeneous attitudes in a nuanced way, requires further study. Furthermore, language barriers and ways to communicate effectively are important factors that need to be considered.^{11,49,50}

Another outreach strategy suggested by participants was raising awareness through social media portals. The feasibility of using social media to increase knowledge has been documented in intervention studies conducted among immigrants and refugees in different countries,^{51–55} including by African immigrant women in Australia.⁵⁶ Reminders through mobile health messages was another approach reported by participants that could help increase cervical screening. Of the few intervention studies carried out among immigrant women for cervical screening in Australia, sending reminder letters significantly increased screening uptake among under-screened women in one study, but an earlier study did not find any effect of it^{57,58}.

Strength and limitations

Use of cross-sectional surveys for studying screening uptake and behaviour is common in health services research; however, it has limitations. Convenience sampling was undertaken, limiting generalizability of the findings. Although the sample size was relatively small and may have not been able to detect barriers, to our knowledge, this study was novel in its focus on South Asian immigrant women in Australia. Low participant number can be attributed to the fact that the topic of cervical cancer is related to sexual and reproductive health practices, and such topics are considered stigmatic among South Asian population, leading to participation hesitancy by women. Moreover, the results cannot be generalized to women who cannot read or understand English, who were excluded from the survey. Hence, further research to study screening rates is warranted especially for women unable to speak English.

Conclusion

Our study aligns with findings reported by the wider literature on cervical screening behaviours and barriers found in multiethnic women in Australia. It confirmed previous observations that South Asian immigrant women in Australia have lower cervical screening rates compared with Australian women, explaining the effect of range of behavioural and informational barriers. While other studies focused on multiethnic women, this study added to the existing literature by focusing on cervical screening behaviours and attitudes in South Asian immigrant women in Australia. The study provided novel data and insights on which tailored multifaceted interventions, focused on delivery of conceptual knowledge and risk comprehension, can be based. Factors related to low uptake such as recent arrival to Australia, lack of free and regular healthcare access and lack of language friendly resources need to be taken into account for this respective group, along with the perspectives of community collaborators and healthcare providers for successful intervention implementation.

Author contribution(s)

Zufishan Alam: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Writing – original draft; Writing – review & editing.

Judith Ann Dean: Formal analysis; Methodology; Supervision; Writing – review & editing.

Monika Janda: Conceptualization; Formal analysis; Methodology; Supervision; Writing – review & editing.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by Australian Government Research Training Program (RTP) Scholarship and The University of Queensland, School of Public Health BBV/STI Professorial Chair Research scholarship.

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Supplemental material

Supplemental material for this article is available online.

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