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EDITORIAL

Nursing shortages and the 'Tragedy of the Commons': the demand for a morally just global response

BACKGROUND

The COVID-19 pandemic together with other global pressures that have been placed on the world's healthcare systems have converged to highlight the prediction –and now reality– of a catastrophic shortage of nurses. What is particularly exasperating about the world's disastrous shortfall of nurses, and the harmful impact this is already having on the capacity of the world's healthcare services to deliver equitable and accessible healthcare, is that it has been utterly predictable and arguably preventable.

In its 2020 *State of the World's Nursing* report, the World Health Organization estimated that, by the year 2030, just under six million nurses will be needed to meet global demand.[1] A more recent estimation by the International Council of Nurses places the figure nearer to 13 million due to the ageing of the nursing workforce,[2] and the growing impact of COVID-19 which has seen nurses burdened with unprecedented heavy workloads, insufficient resources, stress, mental health anguish, burnout and, it should be stated moral quandary.[3] Add to this the dramatic and devastating impact of other world events such as climate change (and its increasingly disastrous impact on health and healthcare services), war, the global economic downturn, partisan politics, existing health inequities, antimicrobial resistance, and the emergence of new pathogens and new pandemics, the future of healthcare and its well documented reliance on the nursing profession is dire unless something dramatic is done to change the status quo.

MAKING SENSE OF THE NURSING CRISIS

There is a need to make sense of the predicament currently facing the nursing profession and the world, and which has been brewing for well over a century.[4] The question is, how best to do so? Moreover, it is difficult to contemplate how best to remedy the current problem of nursing shortages given its scope and the highly politicised policy and planning environments in which the world now finds itself, and where incentives to cooperate do not exist. One possibility is to examine the issue through the lens of the Hardin's famous metaphor 'the tragedy of the commons'. In doing so, however, three questions arise:

- What is the 'tragedy of the commons'?
- What application, if any, does it have for framing an understanding of the disastrous global nursing shortage?
- What moral lessons might be learned by considering the tragedy of the commons metaphor?

TRAGEDY OF THE COMMONS

The 'tragedy of the commons' is an efficacious metaphor that dates back to the publication of a little known pamphlet in 1833 by William Forster Lloyd, an amateur mathematician. The metaphor was later popularised by Garrett Hardin's classic and much cited article of the same title, in which he addresses the existential problem of living in a 'finite world', with finite resources, that can only supply a finite population.[5] In this article, Hardin famously invites people to imagine the metaphor of a paddock ('a pasture') that is freely available to many cattle farmers. Each farmer, unhampered and driven by individual self-interest (and not concerned about the interests of other farmers), allows their cattle to graze the pasture freely, such that over time its availability is progressively eroded to the point of being overgrazed. The tragedy arises because 'individuals have no incentive to abstain from contributing to the depletion of the common pool of resources'.[6 (p.778)] (Other examples used by Hardin include the overuse of national parks by visitors, and pollution of the environment by self-interested parties freely dumping their noxious products into the air we breathe, the water we drink, the land we till, and the oceans we fish).

APPLICATION OF THE TRAGEDY OF THE COMMONS TO NURSING

Universal healthcare systems are systems that have been designed to be available to people on the basis of need. And, like common grazing, the resources supporting universal healthcare systems – a common good – are finite.[7] A key resource in such systems (especially hospitals) is the nursing workforce. As a resource, however, nursing workforces across the globe have been progressively eroded over decades, such that now the world is facing a disastrous depletion of nurses.

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Governments of all persuasions have wilfully turned a blind eye to the slow catastrophe that has been unfolding before them, sacrificing the long term benefits of building a sustainable nursing workforce, for short term political (economic) interests. This 'wilful blindness' (after Heffernan)[8] has paved the way for the perilous situation that the world's healthcare systems now face.

At first glance, it might seem that the metaphor of the tragedy of the commons is 'ill fitted' in terms of its application to nursing. The nursing workforce is not a 'pasture' and reducing the consumption of nursing services (unlike coercing farmers to reduce the number of their cattle grazing a pasture) is not an option. Even if it is accepted that the metaphor meaningfully applies to nursing, this does not necessarily point to a solution. This is because, unlike the independent moral obligations of pastoralists to restrict cattle from grazing freely on common pasture, there is no morally justified independent obligation on the part of those needing nursing care to forego it. Moreover, it is not possible to reduce nursing services without also reducing access and equity to safe healthcare services. And unlike the option of legal remedies to coerce pastoralists to comply with 'other regarding' behaviours, there are no equivalences that could be ethically applied to patients requiring nursing care.

Despite the limited application of the metaphor, there is nonetheless scope to argue that *nursing is itself a tragedy of the commons* – it has been unconscionably 'overgrazed' for decades by hospital administrators, bureaucrats, policy makers, and governments the world over. There is also at least one advantage of seeing the global shortage of nurses through the lens of the tragedy of the commons metaphor: it helps to highlight the demand for a morally just and conscientious response to the problem.

MORAL LESSONS FROM THE PARADOX

Hardin is pessimistic about the use of ethics and the laws of society informed by ethical values to help remedy the tragedy of the commons, arguing that these action guiding systems are 'poorly suited to governing a complex, crowded, and changeable world'.[5(p.1245)] He is particularly reticent about the assumed value of 'guilt' in motivating 'civilised' conduct. Quoting the American writer and public intellectual Paul Goodman,[9] Hardin concurs that:

No good has ever come from feeling guilty, neither intelligence, policy, nor compassion. The guilty do not pay attention to the object but only to themselves, and not even to their own interest, which might make sense, but to their anxieties.[9(p9)]

It is not clear that Hardin and his compatriot Goodman are right. Their views are naïve and lack the benefit of more contemporary empirical evidence and reflections on the subject, which demonstrate the impact that guilt (or more to the point a desire to *avoid* the negative emotion of guilt) can have on regulating moral behaviour.[10] Studies have shown, for example, that although a contested notion and difficult to quantify, guilt has a positive regulating effect in social contexts by motivating moral behaviours that avoid transgressions, prompt apologies, repair and restore damaged relationships, and emphasise personal responsibility for wrongdoing.[11] On the other hand, if Hardin and Goodman are correct in their thinking, this unconscionable stance must be called out for what it is: *unconscionable*. If our institutions and those governing them lack the moral compass (and conscience) required to uphold the moral interests of the communities they supposedly represent and serve, then they do not deserve to hold the social licenses granted to them and these should be forfeited. Hardin's and Goodman's views also beg the question that if conscience and guilt no longer have value as guides to the imperatives of morally just social conduct, then what does?

THE CALL FOR MORALLY JUST GLOBAL ACTION

As the world grapples with how to remedy the erosion of the nursing workforce and build its sustainable future, leaders have been giving prioritised attention to the issues of how best to retain nurses educated domestically and how best to attract future candidates into the profession in both the short and long term. Their attempts are (and will continue to be) fraught, however, as demand exceeds supply in the present, and the education and retention of future generations of nurses takes time. In an attempt to overcome this problem, high-income countries have engaged in the ethically questionable practice of seeking to augment their nursing workforce by 'increasing their reliance on international nursing recruitment'.[2(p4)] This practice is ethically questionable because it stands perilously close to 'poaching' nurses from countries who can least afford to lose their existing establishments of equivalent full-time nursing staff.

In a recent article calling for 'less talk and more action', Ferguson and colleagues correctly argue that 'every country needs to hit the reset button and each of us need to do our part'.[12(p187)] They go on to argue that what is particularly needed is a 'broad coalition' of *whoever* (e.g., from a range of sectors including health, education, security, environmental, agricultural) and *whatever* it takes to bring about change, otherwise things will go backwards.[12(p.187)]

As stated earlier, the conundrum surrounding the global nursing shortage is not new. Neither are the well documented strategies for addressing it: enhancing workforce retention, improving recruitment, encouraging and enabling a return to practice and, where ethical, international recruitment.[4] One strategy that has yet to be recognised and explored, however, is *civic engagement* – a strategy exemplified by the

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political manoeuvrings of Florence Nightingale and her legendary influence on reforming the quality and safety of healthcare in the 19th and 20th centuries.

Civic engagement may be defined as 'the ways in which citizens participate in the life of a community in order to improve conditions for others or to help the community's future'.[13(p.236)] In the protracted aftermath of COVID-19, citizens are being granted a unique opportunity to reflect on and consider what they want and can reasonably expect of nurses and a nursing workforce, and what sacrifices they are prepared to make in order to ensure that when the situation arises, the nursing services they want, need and expect will be available.

Nursing by its very nature is of high value. Nursing matters. Nurses matter.

Nurses matter because the work they do is significant. Their work is significant because it makes the lives of others significant – it gives value to the lives of others by treating them as being worthy of attention and care.

During the COVID-19 pandemic, nurses repeatedly went above and beyond the call of duty. Now it is time for the world's leaders and health authorities to likewise go above and beyond, and to fully engage in the conscientious action that is so desperately needed to redress the status quo.

Dr Megan-Jane Johnstone AO
Retired Professor of Nursing and Independent Scholar

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RESEARCH ARTICLES

Satisfaction with nursing clinical placements in the Northern Territory and work intentions post-graduation

AUTHORS

NARELLE CAMPBELL PhD[1]
JESSIE ANDERSON MNurs (Emerg)[2]
ERICA PETROVIC Grad Dip Nursing[2]
LEIGH MOORE MPH[1]
ANNIE FARTHING M Remote Indig Health[2]
SUSAN WITT MBA (Health Services)[1]
SUE LENTHALL PhD[3]
CHLOE LYONS BANurs[5]
CHRIS RISSEL PhD[1]

1. Flinders Northern Territory, Flinders University, Royal Darwin Hospital campus, Tiwi, Northern Territory Australia
2. Flinders Northern Territory, Centre for Remote Health, Flinders University, Alice Springs, Northern Territory Australia
3. Flinders Northern Territory, Flinders University, Katherine Northern Territory Australia
4. Flinders Northern Territory, Flinders University, Tennant Creek Northern Territory Australia
5. Flinders Northern Territory, Flinders University, Gove District Hospital, Nhulunbuy, Northern Territory Australia

CORRESPONDING AUTHOR

CHRIS RISSEL Flinders Northern Territory, Flinders University, Royal Darwin Hospital campus, Rocklands Drive, Tiwi Northern Territory 0810 Australia. Phone: +61 401 744 876. Email: chris.rissel@flinders.edu.au

ABSTRACT

Objective: The aims of this study are to assess nursing student satisfaction with their Northern Territory clinical placement; describe the characteristics of these students; and examine the relationship between student placements and future rural/remote work intentions.

Background: Positive clinical placement experiences in a rural or remote setting can encourage student nurses to consider working in rural and remote locations after graduation.

Study design and methods: The study is a cross-sectional survey of nursing students, and a review of placement data. Participants were studying a pre-registration Bachelor of Nursing course from a variety of Australian universities who undertook a clinical placement of usually four or more weeks in the Northern Territory from 2017-2019. The main outcome measures are overall satisfaction with their placement, and consideration of living and working in a rural or remote location after graduating. Logistic regression analyses examined the relationship between student placements and future rural or remote work intentions.

Results: One hundred and sixty three undergraduate nursing students responded to the online survey. The majority (70%) of placements were undertaken in remote or very remote (18%) locations. Satisfaction with the placement was very high (94%), and 88% agreed/strongly agreed that the placement had encouraged them to consider working in a rural or remote setting. Satisfaction with educational resources and prior interest in working remotely were associated with overall placement satisfaction ($p<0.10$). Overall satisfaction with the placement and prior consideration of working regionally, rurally, or remotely were significantly associated with feeling encouraged to consider working rurally or remotely ($p<0.05$).

Conclusion: This study supported the logical pathway of providing a satisfying clinical nursing placement in the Northern Territory to contribute to a higher likelihood of the student considering

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working in a remote or rural setting after graduation. Providing satisfying remote clinical placements is a strategy for growing a nursing workforce for remote and rural settings.

Implications for research, policy and practice: Ongoing investment in remote clinical nursing placements is needed to ensure nursing students are satisfied with their placement. In particular, the educational resources and support during the placement need to be of high quality. Actively recruiting students who had a prior interest in working in a regional, rural or remote setting will likely lead to high satisfaction with the placement and contribute to an interest in working in a rural or remote setting post-graduation.

What is already known about this topic?

- Recruitment of student nurses and preparation for working in the rural and remote sector are important for improving population healthcare outcomes for populations who live there.
- Previous studies of nursing, allied health and medical students indicate that exposure to positive placement experiences in regional, rural or remote locations increases the likelihood of students returning to those locations after completing their study.

What this paper adds

- Data from this study come predominately from remote clinical placements.
- Satisfaction with clinical placements in remote locations in the Northern Territory of Australia, and prior interest in working remotely, are associated with considering working in a regional, rural or remote location.
- Satisfaction with educational resources is associated with overall placement satisfaction.

Key words: Remote health; clinical placements; workforce training; primary health nursing; Remote Area Nursing

OBJECTIVE

Understanding the characteristics of nursing students electing to have a remote placement, and their experience of their placement is important to ensure high quality, targeted rural and remote placements that encourage students to consider rural or remote employment after graduation. The aims of this research were to assess nursing student satisfaction with their clinical placement in the Northern Territory (NT) of Australia and its impact on their consideration of working in a rural or remote area, and to describe the characteristics of these nursing students and the placements. The importance of this study is demonstrated by the overarching understanding that student clinical placements are typically considered to be a 'try before you buy' strategy for health services and students. However particularly in remote Australia there are insufficient nursing professionals to deliver needed services and it is also therefore, more challenging to procure student placements in remote regions.

BACKGROUND

The NT has a population of 245,353 in an area over 1.3 million square kilometres with a population density of 0.2 persons per square kilometre.[1] Using the Modified Monash Model (MMM), most of the NT is classified as very remote (MMM7), followed by remote (MMM6) with a small region around Darwin classified as a regional centre (MMM2) and small rural towns (MMM5).[2] There are two major teaching hospitals and three smaller public hospitals. Primary Health Care (PHC) is provided in more than 80 health centres in remote communities run by the NT Government (NTG) and Aboriginal Community Controlled Health Organisations (ACCHOs). PHC is predominantly provided by resident remote area nurses (registered nurses) and Aboriginal health practitioners, with visiting allied health and specialist services.

The delivery of healthcare in the rural and remote sector is heavily dependent upon sustainable recruitment and retention processes of qualified nurses and midwives.[3] Overall annual turnover rates of NT remote area nurses were very high (148%).[4] The high turnover and unstable workforce are associated with higher costs and poorer health outcomes for Aboriginal peoples living in remote communities.[5] A review of the literature identified that appropriate education for the nursing workforce can assist in recruitment and retention, specifically, "(M)aximising early exposure and training in remote areas and contextualising the curriculum for Indigenous health and remote practice".[4(p5)]

Numerous studies have showed significant improvements in medical clinican recruitment to rural and remote areas due to educational initiatives and clinical placements,[6] however initiatives focused on nursing and allied health students have been less studied. A recent cross-sectional study suggests non-medical students (nursing, midwifery, dentistry and allied health) receive significantly less support than medical students to undertake rural placements.[7] An international review looking at intended and effective settlement of nursing students and newly graduated nurses in rural settings in Australia, Canada and the United States indicates

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that rural background, rural placements as well as peer support and the working environment can be factors that lead to an intention to settle in a rural area after graduation.[8]

Managing staff turnover and retention in remote health services is a policy priority.[9] Attracting new nurses to work in a regional, rural or remote location is also a policy priority. In 2016 the Australian Government introduced the Rural Health Multidisciplinary Training (RHMT) Expansion funding program.[10] The RHMT program encourages the recruitment and retention of rural and remote health professionals by "supporting effective rural training experiences" as a strategy for longer term recruitment of health professionals to the regional, rural and remote workforce.[10] In 2016, a number of universities across Australia were separately awarded funding through this program to provide support for work integrated learning placement students from nursing (and allied health professions). This was also the case in the NT to support nursing and allied health student placements across the whole of the Territory. The funding is designed to create placement opportunities with local health services as well as supervising students on placement. The University also supports students on placement with cultural training, interprofessional education and financial support for accommodation and travel. The RHMT funding encourages rural and remote placements as a strategy for longer term recruitment of health professionals to the rural and remote workforce, which is consistently supported by the literature.[6,11-14]

Student placements are a compulsory component of pre-registration training for nurses with the standards set by the accreditation agency the Australian Nursing and Midwifery Accreditation Council.[15] Due to the large number of universities offering pre-registration nursing courses, the resulting competition for clinical placements and the increased Commonwealth funding, the number of students electing to undertake a rural and remote placement has been increasing.

For student placements to effectively attract graduates into the rural and remote health workforce, they must achieve clinical learning requirements, be well supported both academically and personally and fulfill students' interest in aspects of rural or remote living, such as learning about Aboriginal and Torres Strait Islander cultures. An analysis of factors associated with students' rural practice intentions were a "positive" practice experience, interactions with "supportive staff," and interactions with the "community" in general.[16] Minimum living conditions must also be met.[17]

Other qualitative research investigating factors affecting placement satisfaction and wellbeing identified three enablers: enjoyment of the rural environment and community, working in a positive, friendly and supportive workplace, and exposure to broad practice and enhanced learning opportunities.[13] This study also identified five barriers to placement satisfaction and wellbeing: increased financial stress; travel and accommodation challenges and concerns; study-work-life balance and isolation issues; encountering stressful work situations and/or personal events while on placement; and communication issues with universities.[13] Additional factors positively impacting upon student placements are enjoyment of immersion into new settings preparedness for placement, and opportunities for both autonomous and interprofessional practice.[18,19]

So while much is known generally about factors that influence students to join the workforce in the location of their clinical placements, including in rural locations, the specific perceptions of students undertaking an NT nursing placement have not been studied previously. Given the importance of the nursing workforce to overall service delivery in remote NT, it was important that this study specifically investigate the perceptions of those nursing students who had experienced an NT placement.

STUDY DESIGN AND METHODS

DESIGN

The research design is a cross-sectional survey plus a descriptive analysis of a database. Two approaches were used to address the research aims. The first was an online satisfaction survey of nursing students conducted after completion of an NT placement. Second, de-identified student administrative records of undergraduate nursing student placements in the NT were analysed.

SETTING AND SAMPLE

The setting is Northern Territory clinical placements for nursing students from across Australia supported by the RHMT Expansion funding. Pre-registration Bachelor of Nursing students represent a sub-set of all students undertaking a learning placement in the NT, and are the largest single professional group (approximately 40% of all student placements). All nursing students who had undertaken an RHMT supported clinical placement from 2017 to 2019 were eligible to participate in an online cross-sectional survey (n=780) sent from one to three months after their NT placement was completed. Eligible students were from multiple Australian Universities that teach nursing and had to travel to the NT for their placement. However, as nearly all the students were undergraduate Bachelor of Nursing students, we excluded post-graduate nursing students from our primary analysis. Depending on the year and the structure of the university, most placements were between two to eight weeks, with an average of four weeks. Nursing students were required to submit an expression of interest prior to being accepted for placement, to ensure suitability for a remote environment placement. Some students may have undertaken multiple placements or placements at different stages of their degree.

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DATA COLLECTION

Each nursing student was invited to participate by email after their placement (at the end of each quarter) and while participation was explicitly stated as voluntary, students were reminded of the survey twice if they had not responded. Consent was assumed by survey completion. We did not link student satisfaction data to other data as the satisfaction survey are anonymous. The questions used were from the Australian Rural Health Education Network (ARHEN) Student Survey Working Group,[17] and used by all University Departments of Rural Health across Australia to assess student satisfaction with their learning placements. No information on validity and reliability is available. The primary outcomes of interest were agreeing or strongly agreeing with the statements "This placement has encouraged me to consider living and working in a rural or remote location after I graduate" and "Overall, I was satisfied with my placement". We hypothesised that the students were satisfied with their placements, and that their placements encouraged them to consider living and working in a rural or remote location. Further, we hypothesised that those students who were satisfied with their placements would be more likely to be encouraged to consider living and working in a rural or remote location.

Other questions asked about individual characteristics, such as prior interest in living and working in a regional, rural or remote location following graduation, having a rural or remote background, identifying as Aboriginal or Torres Strait Islander, age and gender. Further questions asked about the placement experience, such as participation in Indigenous cultural safety/awareness training, adequacy of this training, receipt of financial assistance, adequacy of education resources and supervision, and adequacy of accommodation. We hypothesised that some of these variables will be associated with satisfaction with their placement and being encouraged to consider living and working in a rural or remote location; and that placement data will demonstrate changes in the number of placements to reflect capacity building strategies in more remote locations.

De-identified records for these same students (but not linked to retain anonymity) were extracted from an administrative database for the years 2017-2019. The database is a standard student registration form owned and managed by the University, with personal contact details, dates and locations of placement, course being studied, and supervisor. Only de-identified structural characteristics of interest were used in this analysis, including the number of students undertaking a placement, and placement time (number of weeks, and average placement length) over time. The base site of the placement was also of interest in terms of potential to expand the placement program.

ANALYSIS

Cross-tabulation of the two main outcome variables (considering rural/remote work and overall placement satisfaction) and all other variables and chi square analysis was used to identify a sub-set of variables with univariate statistical association ($p<0.10$) with these outcomes for undergraduate nurses. This sub-set of variables were entered into a logistic regression model to identify independently statistically significant variables. Non-significant variables were individually removed from the model to identify the best fitting model based on the Pseudo R^2 statistic. Descriptive data from the administrative database for where all nursing student placements occurred are presented to examine change over time.

Ethics approval was provided by The Flinders University Social and Behavioural Research Ethics committee (Project Number 8245). This approval included the use of de-identified data on student placement length and location.

RESULTS

One hundred and sixty three pre-registration Bachelor of Nursing students responded to the online satisfaction survey with mostly complete data (21% response rate). We only included the data for the undergraduate nursing students in our primary analysis (excluding 14 post-graduate nursing students). Nearly all respondents (94%) were satisfied with their placement, and 88% responded that the placement experience had encouraged them to consider working rurally or remotely after graduating. There was little variation in responses to these variables by most personal or placement characteristics (see Table 1). However, in univariate analysis satisfaction with clinical supervision, educational resources and accommodation, and adequacy of their cultural training were associated with overall satisfaction with their placement. Prior interest in working regionally, rurally or remotely, satisfaction with clinical supervision and educational resources, adequacy of cultural training and overall satisfaction with the placement were associated with reporting being encouraged to consider working in a rural or remote location after graduation (see Table 1).

Using logistic regression and adjusting for other variables in the model, satisfaction with educational resources (AOR=22.49, $p=0.067$) and prior interest in working regionally, rurally or remotely were statistically ($p<0.10$) associated with overall satisfaction with the placement (see Table 2). Satisfaction with clinical supervision was borderline independently associated with overall satisfaction with the placement.

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TABLE 1: FACTORS ASSOCIATED WITH UNDERGRADUATE NURSING STUDENTS' OVERALL SATISFACTION WITH STUDENT PLACEMENT AND FEELING ENCOURAGED TO CONSIDER WORKING RURALLY OR REMOTELY

			Overall satisfaction with student placement		Feeling encouraged to consider working rurally or remotely	
		N=163 (%)	% Agreeing/ Strongly agreeing	P*	% Agreeing/ Strongly agreeing	P*
Personal characteristics						
Identify as Aboriginal or Torres Strait Islander	Yes	10 (6%)	100	0.417	100	0.223
	No	147 (94%)	94		87	
Sex	Male	26 (16%)	92	0.747	83	0.512
	Female	133 (84%)	94		88	
Age (years)	18-25	66 (41%)	92	0.796	85	0.406
	26-32	45 (28%)	96		93	
	33-65	50 (31%)	94		86	
Rural background	Yes	62 (50%)	97	0.088	92	0.063
	No	61 (50%)	89		81	
Prior interest in working remotely	Yes	120 (75%)	97	0.026	93	0.001
	No	39 (25%)	87		72	
Placement characteristics						
Satisfied with supervision	Yes	143 (88%)	98	<0.001	91	<0.001
	No**	19 (12%)	63		58	
Satisfaction with educational resources	Yes	137 (86%)	99	<0.001	91	<0.001
	No	23 (14%)	64		64	
Satisfaction with accommodation	Yes	139 (87%)	96	0.008	88	0.246
	No	20 (13%)	80		80	
Inter-professional	Yes	126 (79%)	95	0.171	88	0.775
	No	36 (21%)	89		86	
Based in ACCHO	Yes	17(14%)	100	0.212	94	0.318
	No	108 (86%)	92		85	
Timely cultural safety training	Yes	118 (94%)	93	0.466	86	0.957
	No	7 (6%)	86		86	
Adequacy of cultural safety training	Yes	147 (94%)	95	0.047	90	0.006
	No	10 (6%)	80		60	
Overall satisfaction with placement	Yes	151 (94%)	–	–	92	<0.001
	No	10 (6%)	–		11	
Structural characteristics						
Placement length	≤2 weeks	3 (2%)	100	0.323	100	0.744
	>2 weeks, ≤ 4 week	35 (22%)	89		86	
	>4 weeks, ≤ 12 weeks	71 (44%)	93		86	
	>12 weeks	53 (33%)	98		91	
Financial assistance provided	Yes	88 (70%)	93	0.825	85	0.555
	No	37 (30%)	92		89	

*Univariate chi square

** Yes means Agree and Strongly agree, and No means Neither agree nor disagree, disagree and strongly disagree

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TABLE 2: FACTORS ASSOCIATED WITH UNDERGRADUATE NURSING STUDENTS' OVERALL PLACEMENT SATISFACTION AND ENCOURAGEMENT TO WORK RURALLY OR REMOTELY IN MULTIVARIATE LOGISTIC REGRESSION MODELS

	Overall Satisfaction		Encouraged to work rurally or remotely	
	AOR*	p	AOR*	p
Adequacy of cultural training	0.73	0.830	4.43	0.119
Supervision satisfaction	6.08	0.171	1.69	0.656
Satisfaction with educational resources	22.49	0.067	1.87	0.620
Prior interest in working regionally, rurally or remotely	9.30	0.087	4.48	0.022
Overall satisfaction	–	–	40.89	0.004

*Adjusted Odds Ratio

In a separate logistic regression model adjusting for other variables in the model, two factors were independently statistically significantly associated with considering working in a remote location after graduation (see Table 2). These were overall satisfaction with their placement (AOR=40.89, p=0.004), and prior consideration of working regionally, rurally or remotely (AOR=4.48, p=0.022).

Universities across Australia (n=23) supported their students in having a clinical placement in the Northern Territory. Most of the students (75%) came from the two Universities with campuses in the NT.

DISCUSSION

The results show that nursing students were highly satisfied with their placement experience, and most reported that the placement had encouraged them to consider working in a remote setting. This is consistent with feedback from allied health students on placement in the NT.[20] Nursing students' satisfaction with their educational resources was the only factor associated with overall placement satisfaction. Meeting learning requirements, and therefore likely fostering a sense of confidence and skill in a remote setting, would plausibly be related to a satisfying placement. Learning clinical skills is a major objective for students on rural/remote placements.[21,22] Nursing students are also often provided with an educational facilitator in addition to the clinical supervisor they work alongside. Facilitators provide support for both clinical learning outcomes as well as more general pastoral care and personal support in the transition to a new setting. This additional educational resource may also have been a factor in the satisfaction with the placement experience as a whole.

Only two variables, overall placement satisfaction and prior interest in working regionally, rurally or remotely were associated with increased positivity towards working rurally or remotely. Focusing placement recruitment efforts on those student nurses who were already interested in working remotely seems likely to be highly effective. Further, highlighting a career development pathway for remote area nursing for student nurses interested in working remotely may help nurses prepare for this role. This might encompass providing information to undergraduate nurses describing the role of a remote area nurse, the skills and training required and courses that might help prepare them, and also the unique settings and the benefits of working remotely, such as discovering more about remote communities and Indigenous culture.

Of course, good supervisors are at the heart of a good placement, and systems need to be established to ensure ongoing high quality supervision, to maintain high levels of satisfaction with their educational resources and to support students in the transition to rural and remote life.[25,26] Supervisors need to have a clear understanding of their roles and expectations and also of what the student is expected to learn, be trained and supported in providing supervision, and have good communication with the host University.[24] These topics are covered in supervisor orientation training programs which are supported by the RHMT program in the NT. However, it is worth noting that while nurses, health service managers and University trainers valued clinical skills, a qualitative study in the NT identified that Aboriginal staff and community residents in remote communities prioritised cultural skills over clinical skills, and that having the "right" nurse was more important than having more nurses.[27]

Future nursing workforce needs mean a greater emphasis is needed on attracting students from rural and remote backgrounds into nursing, and who are prepared to work in rural and remote areas.[28] A broader package of workforce strategies is needed.[29] Nurses in rural and remote areas need to be able to demonstrate an extended knowledge and skills base from within their own discipline, and embrace the concept of an advanced generalist nursing role.[30] It is therefore essential that as well as exposure to rural and remote practice, in their placements, pathways for new graduates and novice nurses to move into rural and remote practice must also be developed. It has also been suggested

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that mandating credentialing of rural and remote nurses should be avoided, but that accessibility to education for rural and remote nursing needs to increase.[31] For example, post-graduate programs such as the Flinders University Graduate Certificate in Remote Health Practice are being used by the Central Australian Aboriginal Congress in Alice Springs to support a career pathway into remote area nursing. Further, some regions (e.g. Katherine, NT) proactively support nursing students to have a clinical placement in the very remote Primary Health Care Sector.

LIMITATIONS

Although consistent with other online surveys, the low response rate raises the possibility of biases in the responses. There is some ambiguity around student satisfaction with 'educational resources', as these would vary from placement site to placement site, and we are not able to define exactly what the resources were or to differentiate them from the support of facilitators and supervisors. Likely resources include profession-specific learning materials made available by health services providing the placement, and student-focused professional development sessions and cultural education workshops made available by ourselves. Indeed, there are some limitations to the analyses and interpretation of the results because of the standardised instrument we used to collect satisfaction data,[17] which did not provide detailed information in some areas (e.g., educational resources, supervision quality) and had unknown validity and reliability. It is possible that other variables (i.e. potential endogeneity) could explain the results, although our conclusions are consistent with the literature.

It is worth noting that traditionally important variables such as length of placement and rural background,[32] were not statistically significant in our multivariable analyses (although rural background was significant ($p<0.10$) in univariable analysis. This may be due to the very high levels of satisfaction with the placement which has skewed the results and makes it more difficult to see variation in the data.

MacKay et al note that most research on factors associated with nurses' decisions to work in a rural or remote setting are cross sectional or at a single moment in time.[33] This highlights the need for prospective studies to understand nurses' experiences over time,[34] and the complexity of the decision-making process over the course of a career.

CONCLUSION

Nursing students were highly satisfied with their clinical placements in largely remote settings in the NT and felt their placement encouraged them to consider working in a rural or remote setting. Two factors that were associated with overall placement satisfaction were satisfaction with educational resources (which can be influenced by placement organisers and supervision) and prior interest in working regionally, rurally or remotely (which can be identified and prioritised). Providing satisfying remote clinical placements is a strategy for growing a nursing workforce for remote and rural settings.

IMPLICATIONS FOR RESEARCH, POLICY, AND PRACTICE

Ongoing investment in remote clinical nursing placements is needed to ensure nursing students are able to undertake placements in these settings that meet their learning needs while ensuring they are satisfied with their placement. In particular, the educational resources and support during the placement need to be of high quality, because of their association with overall placement satisfaction. Actively recruiting students who had a prior interest in working in a remote setting will likely lead to high satisfaction with the placement and contributes to an interest in working in a rural or remote setting post-graduation.

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RESEARCH ARTICLES

Benefits and impacts of the PNSA role: surgeon and nurse perspectives

AUTHORS

OLIVIA SONNEBORN MN, RN[1,2]

PETER STACEY MN, RN[2]

1. Department of Perioperative Medicine, Alfred Health, Melbourne, Victoria, Australia.
2. Latrobe University, The Alfred Centre, Melbourne, Victoria, Australia.

CORRESPONDING AUTHOR

OLIVIA SONNEBORN Latrobe University, The Alfred Centre, Level 4, 99 Commercial Road, Melbourne Victoria 3004 Australia and the Department of Perioperative Medicine, Alfred Health, 55 Commercial Road, Melbourne Victoria 3004 Australia. Email: o.sonneborn@latrobe.edu.au

ABSTRACT

Objective: To develop an understanding of the knowledge, skills and qualities the Perioperative Nurse Surgeon's Assistant (PNSA) role contributes to surgical service delivery in Australia.

Background: The benefits and attributes of the PNSA or Non-Medical Surgical Assistant (NMSA) have been explored globally. Previous research demonstrates the PNSA or NMSA as effective providers of safe and effective delivery of surgical assisting care. The PNSA as an advanced practice nurse (APN) has been identified as improving both the quality and accessibility of surgical care, although this is yet to be fully acknowledged in the Australian context. Greater exploration of the benefits and contributions of the PNSA to surgical service delivery in Australia is required.

Study design and methods: A mixed method design study was undertaken across four healthcare facilities in South Australia; including a quantitative, cross-sectional survey of perioperative nurses, as well as semi-structured, qualitative interviews with surgeons who work with a PNSA.

Results: From a survey of 55 perioperative nurses and five surgeons who work with PNSAs, the seven attributes or qualities deemed to be important of the PNSA included knowledge of anatomy, instrumentation and surgical procedure, consistency, theatre efficiency, collaboration, educational resource, patient advocacy and leadership.

Discussion: The identified benefits and attributes of the PNSA clearly demonstrate the advanced level of perioperative expertise they bring to the surgical team, but also that they have the ability to change the culture of the team, embracing a more unified working environment. Consistency of practice and collegiality between medical, PNSA and nursing teams can offer advanced perioperative care to the surgical patient. Surgical assisting knowledge and skills often require a protracted learning curve to attain expertise, a role suitable to be undertaken by PNSAs practicing in APN roles. Where consistency of a qualified medical assistant is not routinely available the consistency and dependability of the PNSA is particularly suited to highly technical specialist surgical domains and sought after by the surgeons interviewed.

Conclusion: The PNSA can positively affect the operating theatre environment and offer multiple individual benefits to the patient's surgical journey. The consistency the PNSA conveys offers a more streamlined process for the operative team, reassurance for the surgeon and the potential for improved theatre efficiency. This consistency is seen to enhance communication across the surgical team increasing patient safety, increasing efficiencies in both the individual patients' surgical journey and across the surgical service.

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Implications for research, policy, and practice: The PNSA is a valued member of the Perioperative team from both medical and nursing perspectives, who contributes qualities of specialist knowledge, a positive and collaborative team culture and continuity attributes to the operative team and environment. The healthcare benefits and impacts from these positive qualities needs to be explored further.

What is already known about the topic?

- Previous research demonstrates the PNSA or NMSA as effective providers of safe and effective delivery of surgical assisting care.
- The PNSA has been identified as improving both the quality and accessibility of surgical care in Australia and globally.
- There is limited evidence identifying the qualities the Perioperative Nurse Surgeon's Assistant (PNSA) role contributes to surgical care in Australia, compared to international settings.

What this paper adds

- The knowledge, skills and qualities of the PNSA provide a nexus within the operating team, with the surgeons they assist and to develop a positive culture with the surgical environment.
- The role of the PNSA is highly valued from both medical and nursing specialties.

Keywords: Perioperative Nurse Surgeon's Assistant, Non-Medical Surgical Assistant, Advanced Practice Nurse, nurse, Registered Nurse First Assistant.

OBJECTIVE

To develop an understanding of the knowledge, skills and qualities the Perioperative Nurse Surgeon's Assistant (PNSA) role contributes to surgical service delivery in Australia.

BACKGROUND

The benefits and attributes of the Non-Medical Surgical Assistant (NMSA) have been documented globally.[1-12] Some NMSA groups have been successful in gaining professional recognition and regulation within their various healthcare systems around the world, although evidence suggests the roles and benefits of NMSA's differ globally based on locality and between healthcare systems.[1] Within Australia, the role of NMSA or Perioperative Nurse Surgeon's Assistant (PNSA) has limited documented evidence on what these benefits are, with the PNSA role continuing to encounter barriers to gain professional recognition and regulation.[13,14,15]

The PNSA or NMSA is an emerging role in Australia undertaken by highly experienced perioperative nurses since the 1990's.[16] For this study the term Perioperative Nurse Surgeon's Assistants (PNSAs) will be used and includes Non-Medical Surgical Assistants (NMSAs) and Registered Nurse First Assistants (RNFAs), and a perioperative nurse is a nurse who works in the operating theatre. The PNSA practices as the first assistant in surgery under the guidance of the surgeon. The role is not currently recognised or regulated by a professional body in Australia, despite the role meeting the definition of the scope and practice of an Advanced Practice Nursing (APN) role in Australia.[2] The Nursing and Midwifery Board of Australia (NMBA) states "Advanced Nursing Practice as a continuum along which nurses develop their professional knowledge, clinical reasoning and judgements, skills and behaviours at higher levels of capability (that is recognisable).Their practice is effective and safe".[17]

The one Advanced Practice Nursing (APN) role that has been successful with professional recognition and regulation in Australia is the Nurse Practitioner (NP), which has demonstrated nurses can build on their current knowledge and skills and become more independent practitioners.[13,18,19] The Nursing and Midwifery Board of Australia (NMBA) limit use of the term APN to the NP role. The NMBA acknowledge there are many other specialty groups and areas within nursing but do not recognise them as APN roles. Research conducted by the NMBA has explored the need for regulation of these specialty areas and concluded that organisations that represent such areas have developed their own processes of recognition and are sufficient for employers and the health industry to recognise their practice.[20,21] In Australia, the NP builds and expands upon the standards of practice of those required of an RN, building on their responsibilities and accountabilities within their specialist area of care and enabling them to work independently and collaboratively across the multi-professional environments.[22]

The PNSA role has been shown to benefit patients and communities, by expanding access to surgical services, particularly in rural areas, where inconsistency of medical assistants and medical practitioners is limited and unreliable.[15,23] However, the expansion and broader utilisation of PNSA roles in Australia continues to encounter barriers without support from the NMBA. Limitations relate to health service utilisation of PNSAs and access to funding schemes (such as Medical Benefit Scheme).[24] The Australian College of Perioperative Nurses (ACORN) recognise the role of PNSA as a legitimate perioperative position that warrants its own professional standard.[25]

The Australian Association of Nurse Surgical Assistants (AANSA) was established in 2012, to support the ongoing development of the PNSA role in Australia and represent both practicing and student PNSA's. Presently, there is one

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tertiary organisation (Latrobe University) in Australia which provides education to perioperative nurses to meet the PNSA credentialing requirements outlined by AANSA, which requires PNSAs have at least five years perioperative nursing experience, registration with Australian Health Practitioner Regulation Agency (AHPRA) and meet clinical assisting competency hours with a surgeon mentor.[16, 23]

Studies into the role of the PNSA have identified multiple patient-centred benefits throughout the phases of perioperative care; preoperative, intraoperative and postoperative.[2,4,5,7,8,13,18,26,27] Such benefits relate to the areas of leadership, educational resource, patient education, operating theatre efficiency, reduction of surgical site infection, patient advocacy, knowledge of anatomy, instrumentation, equipment and surgical procedures, and collaboration between professional, medical and allied health groups.[2,4,5,7,8,13,18,26,27] Consistency within the role of the PNSA was identified as an attribute within the role supporting increased efficiencies leading to improved operating room patient throughput and improved patient outcomes and safety.[28] The PNSA is also perceived to be linked to equity of access to surgery within both the private and public health systems.[29]

To further encourage professional recognition of the PNSA role in Australia, it is important to broaden the evidence-base affirming the benefits and contributions of the PNSA role to patient care, the perioperative team and the healthcare setting. This study explores the knowledge, skills and qualities the PNSA role contributes to surgical service delivery in Australia, from the perspective of perioperative nurses and surgeons who work with PNSAs in South Australia.

METHOD

A mixed method design study was undertaken across four private healthcare facilities in South Australia: including a quantitative, cross-sectional survey of perioperative nurses, as well as a series of semi-structured, qualitative interviews with surgeons working with a PNSA.

A literature review was conducted to scope recent publications relating to the benefits, qualities, and attributes the PNSA contributes to healthcare delivery. A search of databases CINAHL, Proquest and Google Scholar was conducted. Inclusion criteria were peer-reviewed articles published in English between 2016-2022. Examples of terms searched for include role, perception, surgical, surgeon, nursing non-medical, assistant, which produced the review of 37 articles in total.

The literature review identified evidence-based qualities and attributes associated with the PNSA in Australia, listed here from greatest number of citation to least; Collaboration between professional, medical and allied health groups (5), Reduction of Surgical Site Infection (SSI) (5), Leadership (4), Educational Resource (4), Knowledge of Anatomy, Instrumentation, Equipment & Procedures (4), Continuity of Care (4), Cost Effectiveness (4), Patient Education (3), Theatre Efficiency (3) and Patient Advocacy (2).

Based on the qualities that emerged from the literature review, survey questions were developed for both the perioperative nurse survey and the surgeon interviews. The perioperative nurses were provided a four week period in which the online survey could be completed, and the surgeon interviews were conducted during this same four week timeframe. Quantitative and qualitative results were triangulated to identify which of these benefits were applicable to the PNSA in South Australia. The scoping review was undertaken as part of a Master's level study, and ethics approval (low risk) was granted from Latrobe University at each of the four participating hospitals; nil ethical issues arose during this research project. The survey questions were piloted on six perioperative nursing staff at one of the hospitals for validity; these six staff regularly work with a PNSA, are perioperative nurses and expressed previous interest in the theme of the study.

STUDY POPULATION AND SAMPLING

Participation was sought from perioperative nurses and surgeons from four private hospitals across South Australia, which were identified to use and employ PNSAs. Inclusion criteria stipulated participants must work with or have worked previously with a PNSA. The total population of this group across the four hospitals was calculated to be approximately 72 perioperative nurses. Utilising the Australian Bureau of Statistics (ABS) sample size calculator, it was determined to achieve statistical significance with a 95% confidence interval and a 5% margin of error, a sample of 60 perioperative nurses from this population would need to complete the survey. While this was achieved, some were deemed invalid due to the participants not meeting inclusion criteria of having worked with a PSNA; 55 valid survey responses were returned.

Semi-structured interviews were undertaken with five surgeons who routinely work with PNSAs or have previously worked with a PSNA. The inclusion criteria for the surgeon group stipulated participants must utilise or have in the past utilised PNSA's as their first assistant in surgery. The population size of the surgeon group that utilise PNSA's in South Australia was approximately 15; only five surgeons expressed interest to be interviewed.

DATA COLLECTION

Data collection was undertaken over a fourweek period in September 2020 for both the perioperative nursing and surgeon groups.

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A mixture of sampling methods was used to recruit participants. Convenience sampling was utilised via online access to the survey for the perioperative nurse group. An advertising poster was circulated by Perioperative Nurse Educators at the four identified hospitals in South Australia via email, education notice boards and discussed with staff. Perioperative Nurse Educator's contact information was requested by the author by phoning the Perioperative Department. One follow-up phone call was made to the Perioperative Nurse Educators throughout the survey period. The Perioperative Nurse survey was compiled utilising the Qualtrics survey platform. There was a total of 52 questions, in the form of closed-ended, Likert scale and open-ended questions. The questions were developed from the qualities identified from the scoping review, including demographic questions of the perioperative nurses. The questionnaire was self-administered at a time convenient for each participant and was undertaken within the fourweek study timeframe. The average time taken to complete the online survey was 20 minutes.

Convenience and purposive sampling were used to recruit surgeons who met the inclusion criteria. Six surgeons known to the author were contacted directly to seek their participation in semi-structured interviews. Nine surgeons' unknown to the author utilising PNSA's were contacted via email with a follow-up phone call to establish their interest in participating in the study; their contact information was sought from private practice websites, including email addresses and phone numbers.

There were 13 questions developed for the surgeon interviews following the literature review, to generate discussion about the role of the PNSA. All interviews were conducted by telephone (due to COVID-19 related restrictions). The surgeons were provided with an information sheet and consent form, sent by email at least two days prior to the interview being undertaken. Verbal consent was then received prior to the interviews taking place. The interviews were audio recorded on a laptop computer utilising 'QuickTime audio recording'. Cloud function was disabled on the laptop and the files were saved directly to a secure Latrobe University Cloudstor drive. Following the interview, the recordings were transcribed; pseudonyms were used to de-identify participants to protect their privacy. The interviews varied in length depending on the discussion generated with each individual surgeon. The average duration of an interview was 21 minutes.

ANALYSIS

Following completion of the survey, the quantitative information was extracted from the Qualtrics system and organised within a Microsoft Excel document using nominal measurements for categorisation purposes. This allowed for ease of translation into the Statistical Package for the Social Sciences (SPSS) software system, so Chi Square analysis could be undertaken to test categorical variables. This was undertaken on the 55 nurse participant questionnaires that met all inclusion criteria.

The qualitative data was transcribed immediately following each interview. Once the data collection phase was complete, analysis took place. This involved line by line coding and looking for relevant themes. Relationships within the data were identified and organised into a summary of results. In addition, qualitative thematic analysis was undertaken with the three authors, and one Latrobe University academic personnel. This analysis included a 30-minute period for each member to study and identify themes from the interview transcripts followed by a 30-minute conversation.[30] This was undertaken to reduce potential bias that could occur from individual analysis. The conversation was recorded and used to further document results and form a robust discussion.

Triangulation between the qualitative and quantitative data was then performed to find common areas of interest, as well as any major contradictions. Data triangulation occurred from the perioperative nurse and surgeon groups, where the top five qualities were similar between perioperative nurses and surgeons.[31] To triangulate results, a points system was allocated. The top qualities identified by each group (perioperative nurses or surgeons) were given five points, the next was given four points and this allocation continued.

QUALITATIVE RESULTS

SURGEON PERSPECTIVES

1. Perceived benefits of the PNSA

Overall, the five surgeons interviewed all agreed that the role of the PNSA is highly beneficial in a variety of ways. The surgeons were verbally informed of the benefits identified in the scoping review and asked to comment on each and further asked to rank what they believe were the top three most important. No surgeons refused to continue to participate in the survey once it had commenced, and an average of 21 minutes was taken to complete the interviews via phone. Table 1 displays the ranking from the surgeon responses in perceived benefits and qualities of the PNSA.

TABLE 1: SURGEON'S MOST IMPORTANT PERCEIVED QUALITIES OF THE PNSA

Benefit/Attributes	Points	Rank
Knowledge of anatomy, instruments and surgical procedures	9 pts	1st
Continuity/Consistency	8 pts	2nd
Collaboration	4 pts	3rd
Educational Resource to perioperative team	3 pts	4th
Leadership	2 pts	5th

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Continuity and consistency were identified by the surgeons to have the same meaning. When surgeons mentioned continuity, this related to having a consistent person in the role of surgical assistant; different to the separate benefit, identified in the scoping review, of 'continuity of care', which relates more to benefits in patient care. S1: "We really like the continuity rather than having a doctor who is different every few weeks." S2: "Once you work with the same person over a period of time, you establish a working relationship where the assistant can assist you more effectively in an operation." S3: "I find it gives much better continuity with assistance, otherwise you can get anyone assisting you each time and especially for robotic [surgical] cases, it's really important to have someone who knows the robot and is familiar with how the surgeon operates because there's a great variety in surgical assisting abilities, especially with people who are robotic trained as well."

Knowledge and surgical competence were identified as 'individual' specific attributes, as it depends on the background and training of each PNSA. All surgeons identified the PNSA plays a role in perioperative staff education; this was especially attributed to the use of specialised robotic equipment. When asked about patient advocacy as a PNSA quality, the surgeons agreed the PNSA is a good patient advocate.

Reduction of surgical site infections (SSI) were identified by the scoping review as a potential benefit of the NMSA; however, the surgeons interviewed mostly disagreed that SSI reduction could be attributed to the use of a PNSA. While one surgeon mentioned that additional operating theatre efficiency could have an impact on the reduction of SSI, most (n=3) stated the fundamental practice of aseptic technique would not differ based on the surgical assistant and did not support the notion reduction of surgical site infections was specific to the PNSA role.

2: Change in Theatre Dynamic

The collaboration and leadership skills identified enables the PNSA to positively change the dynamic in the operating theatre, by linking nursing and medical staff. S1: "I think it's a different role because it's a link. It's a link role between the nursing staff and the surgeon. It's almost like a hybrid role." When specifically discussing operating theatre collaboration, all five surgeons mentioned that the PNSA plays an important role. Working as a link between perioperative nursing and medical teams was seen as an integral benefit of the PNSA. S2: "The nurse assistant is an integral part of the surgery so collaboration between the surgeon and the assistant is critical." S4: "It's not so much what you say or even how you say it, it's where it comes from, and because of the different power dynamics between me [surgeon] and the others, I think, compared to the PNSA, I think it changes all of that." The term 'making sure' was identified throughout numerous interview transcripts offering reassurance for the surgeons. The word 'streamlined' was also mentioned within this area demonstrating continuity and efficiency.

3: Risks, Limitations & Opportunities

Training of PNSA's was identified by one surgeon (S1) as a potential risk to patients from utilising a non-medical assistant; however, it was also noted by the same surgeon, that once a PNSA has been properly and fully trained within their specialist area of practice, the risk is not only reduced, but it is less than utilising varying assistants due to the consistency of practice. Emergency intraoperative management of situations, such as major haemorrhage was also identified as a potential risk (S4) of having a PNSA because the PNSA may not have undertaken adequate surgical training in various specialties to manage all complications that may occur, but it was also noted by one of the surgeon participants (S5) that this is a risk no matter who is in the position of surgical assistant.

Numerous limitations of the PNSA role were identified throughout the interviews. Remuneration for the service provided by the PNSA is not currently covered by Medicare (MBS). The current lack of Medicare Benefit Schedule provider numbers (mechanism for remuneration through Medicare) for PNSA's means the patient potentially incurs further costs to receive specialised surgery. With the NP being the only APN role recognised in Australia, the consensus from the surgeon group was that the PNSA role and the NP role were comparable with regards to benefits within their specialist areas of practice.

There was contention offered as one surgeon (S2) who identified the responsibility of the NP to being more involved than the PNSA, while another (S3) suggested they were comparable, because they both provide specialist care within the area, they are skilled. The continuity and collaborative nature of the NP and PNSA roles demonstrate similarities, "They're similar and I think they're definitely comparable and can potentially have just as much impact as each other" (S1). S5 also suggested the benefits offered to the team and healthcare system are comparable while S4 stated "the PNSA is arguable more useful". Remuneration, among other issues, contributes to the lack of PNSA's undertaking training and therefore, their availability to assist surgeons. Opportunities for the role within South Australia were discussed with the surgeons. It was noted that current opportunities are somewhat limited due to the nature of the current remuneration systems.

PERIOPERATIVE NURSES

In total, 55 surveys were deemed valid as five did not meet the inclusion criteria of having ever worked with a PNSA. Participants were asked demographic information to enable results to undergo Chi square testing to identify variables amongst the population based on their specialty and experience (Table 2):

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TABLE 2: PERIOPERATIVE NURSE DEMOGRAPHICS

	n	%
Perioperative Role		
Scrub Nurse/Technician	38	72
Scout Nurse/Technician	28	53
Anaesthetic Nurse/Technician	16	30
Other	2	4
State or Territory		
New South Wales	1	2
South Australia	52	98
Healthcare Setting		
Public Hospital	2	4
Private Hospital	53	100
Private Practice	1	2
Surgical Specialty		
General/Colorectal/Bariatric	25	47
Urology	47	89
ENT	5	9
Cardiac	1	2
Plastic/Reconstructive	3	6
Gynaecology/Obstetrics	6	11
Orthopaedics	6	11
Vascular	3	6
Other	9	17

	n	%
Age Group		
20-29	8	15
30-39	26	49
40-49	13	25
50-59	4	8
60+	2	3
Sex		
Male	11	21
Female	42	79
Years of Periop Experience		
< 2 years	0	0
3-5 years	11	21
5-10 years	17	32
10+ years	25	47
Years with PNSA		
< 1 year	9	17
1-2 years	31	58
3-4 years	8	15
5+ years	5	10

1. Perceived Benefits of the PNSA

The perioperative nurse group identified all the benefits presented within the scoping review as being indicative of the PNSA role. Attributes in order of rank are listed along with their percentage of respondents (Image A):

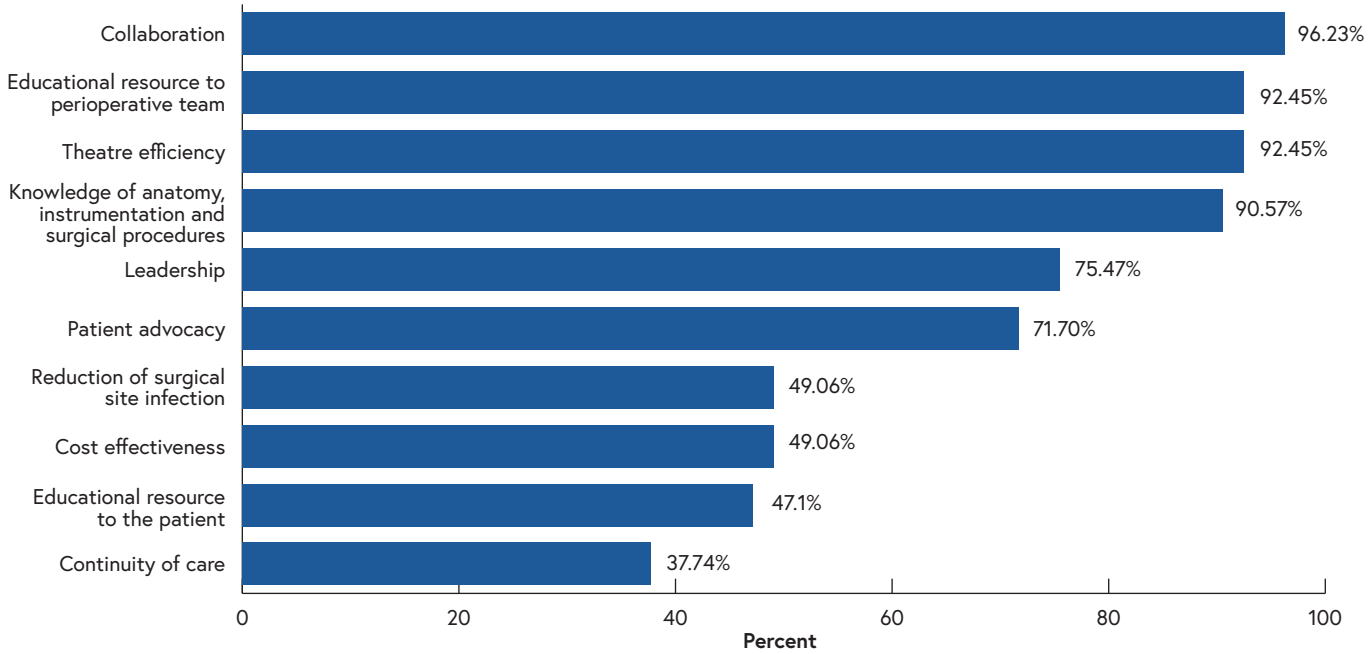

FIGURE 1: PERCEIVED PERIOPERATIVE NURSE BENEFITS OF THE PNSA

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TABLE 3: PERIOPERATIVE NURSES' MOST IMPORTANT PERCEIVED QUALITIES OF THE PNSA

Benefit/Attribute	Responses x 3	Responses x 2	Responses x 1	Total	Rank
Knowledge of Anatomy, Instrumentation and Surgical Procedures	19 x 3 = 57	11 x 2 = 22	2 x 1 = 2	81	1
Theatre Efficiency	8 x 3 = 24	13 x 2 = 26	10 x 1 = 10	60	2
Collaboration	6 x 3 = 18	12 x 2 = 24	15 x 1 = 15	57	3
Educational Resource to Perioperative Team	10 x 3 = 30	6 x 2 = 12	10 x 1 = 10	52	4
Patient Advocacy	5 x 3 = 15	4 x 2 = 8	5 x 1 = 5	28	5
Leadership	2 x 3 = 6	2 x 2 = 4	1 x 1 = 1	11	6
Cost Effectiveness	0 x 3 = 0	0 x 2 = 0	5 x 1 = 5	5	7
Continuity of Care	0 x 3 = 0	2 x 2 = 4	0 x 1 = 0	4	8
Reduction of SSI	0 x 3 = 0	1 x 2 = 2	1 x 1 = 1	3	9
Educational Resource to the Patient	1 x 3 = 3	0 x 2 = 0	0 x 1 = 0	3	9

Other benefits and qualities identified by the perioperative nurse group were consistency within the operating theatre, insight and understanding of how the perioperative process works from a nursing point of view, communication, and provision of a holistic spectrum of care.

Significant associations ($p < 0.001$) were demonstrated between the instrument and circulating (Scrub/Scout) and Anaesthetic nursing roles with all responses relating to benefits, risks, and limitations of PNSAs. Similarly, there were significant associations ($p<0.001$) between 'years working with a PNSA' and 'years of perioperative experience' with all survey responses. This identified that nurses of all ages, background and experience demonstrated uniform responses adding to the validity of the results. Perioperative nurses were asked to identify the three most important qualities of the PNSA. A point system was applied to enable ranking of these qualities, with responses displayed in Table 3:

While not rating SSI reduction highly on the list of qualities, perioperative nurses saw it as an area the PNSA can have an impact. One hundred percent (n=51) of respondents that provided an answer for this question, demonstrated they believed the PNSA's previous career as an instrument nurse (scrub nurse) positioned them well to understand and practice a high level of aseptic technique. Further results regarding SSI reduction are displayed in Table 4.

2: Change in Theatre Dynamic

Collaboration, leadership, and consistency were three key qualities identified as being highly indicative of the PNSA role. These are benefits that can be linked directly to the ability of the PNSA to add to a positive operating theatre dynamic. The perioperative nurse group were asked a series of questions on these attributes with the results displayed in Table 5.

TABLE 4: PERIOPERATIVE NURSES' RESPONSES TO SSI BASED QUESTIONS

	n=	%
Do you think a PNSA's knowledge of surgeon preferences leads to shorter operating times?		
Yes	45	92
Unsure	4	8
No	0	0
Does the PNSA utilise the practice of double gloving for invasive surgical procedures?		
Yes	47	92
Unsure	2	4
No	2	4
Do you believe the PNSA understands and follows the policies and protocols set by the hospital/healthcare facility with regards to sterile technique, double gloving and SSI?		
Yes	50	98
Unsure	0	0
No	1	2
With regards to sterile technique, how would you rate the ability of the PNSA?		
Higher than average	43	84
Average	7	14
Lower than average	0	0
Unsure	1	2

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TABLE 5 – PERIOPERATIVE NURSES' RESPONSE TO QUESTIONS BASED ON 'CHANGING THEATRE DYNAMIC'

	n=	%
Do you think the PNSA enhances communication between the nursing and medical teams in the operating theatre?		
Yes	45	87
Maybe	7	13
No	0	0
Do you see the PNSA as a leader in theatre?		
Yes	33	62
Maybe	16	30
No	4	8
Do you look to the PNSA for guidance?		
Yes	45	85
Maybe	6	11
No	2	4
Do you think the PNSA has an effect on the culture within the operating theatre?		
Yes	49	92
No	4	8
Do you think this is a positive or negative effect?		
Positive	47	100
Negative	0	0

Despite the quantitative nature of the survey, the perioperative nurse survey contained open-ended questions, with responses reflecting how the PNSA contributes to both the medical and nursing teams, acting as a link and, in turn, improving the operating theatre dynamic. Multiple perioperative staff identified the PNSA is more approachable than a medical assistant.

> *"They are not only part of the medical team but also part of the nursing team."* Respondent 27

> *"The PNSA is more engaged with the whole team which links nursing and medical staff."* Respondent 1

Further to the theme of a change in operating theatre dynamic, was the perioperative nurse's perceptions of the PNSA's insight into the workings/operations of the operating theatre process.

> *PNSA's not only fulfil the role of a medical assistant, but also understands and assists nursing roles in the perioperative space."* Respondent 21

> *"The PNSA is more in touch with theatre needs in regard to equipment and setup. They have a comprehensive understanding of the scrub/scout role and can help troubleshoot or suggest ideas to the nursing staff."* Respondent 15

> *"The PNSA has better skills in anticipation throughout the case and supporting the whole theatre team."* Respondent 41

> *"The PNSA's greater understanding of theatre protocol makes them a greater hand during and after the surgery. They seem to have a greater understanding of the small jobs required in the setup and more of an understanding of the instruments used. It seems they are more flexible and better communicators with the nursing staff."* Respondent 22

3. Risks, Limitations & Opportunities

There was minimal risk identified by the perioperative nurse group of the PNSA role. "Emergency situations" (none specifically identified) were identified as one potential risk and that the PNSA may not be able to lead care in the event of the surgeon becoming incapacitated, as this would delve outside the PNSA's scope of practice. Limitations identified by the perioperative nurse group include misconceptions of the role within the healthcare system and community, as well as remuneration issues from the lack of access to MBS funding.

TRIANGULATION OF RESULTS

Data triangulation occurred from the perioperative nurse and surgeon groups, where the top five qualities were similar between perioperative nurses and surgeons.[31] To triangulate results, a points system was allocated. The top qualities identified by each group (perioperative nurses or surgeons) were given five points, the next was given four points and this allocation continued (Table 6).

TABLE 6: MOST IMPORTANT QUALITIES OF THE PNSA

	Surgeons	Perioperative Nurses	Points Allocated
1.	Knowledge of anatomy, instrumentation and surgical procedure	Knowledge of anatomy, instrumentation and surgical procedure	5 points
2.	Consistency	Theatre efficiency	4 points
3.	Collaboration	Collaboration	3 points
4.	Educational resource to the perioperative team	Educational resource to perioperative team	2 points
5.	Leadership	Patient Advocacy	1 point

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DISCUSSION

The qualities surgeons and nurses believe the PNSA possesses and offers to the perioperative team have been clearly identified and combine to form a series of phenomena that can change the dynamic of the entire perioperative team, embracing a more unified working environment, contributing to a positive professional culture, which may contribute to positive patient outcomes.

Smith et al. (2016) identified leadership, surgical experience, patient set-up and the PNSA as a resource in the operating theatre to be the major benefits of the PNSA at a hospital in Queensland, Australia.[27] Smith et al. (2016) surveyed 12 PNSAs, 13 surgeons and 35 perioperative staff.[27] This study in South Australia has solidified these as major benefits and has identified numerous others that demonstrate the effectiveness of the role. The PNSA's knowledge of anatomy, instrumentation and surgical procedures in which they practice was the most important attribute identified by both surgeon and nurse groups, reinforcing the apparent benefit the PNSA contributes to the surgical experience.[27]

Collaboration was identified as the third most important quality of the PNSA by both the surgeons and nurses. The operating theatre is traditionally a hierarchical environment, where the importance of teamwork cannot be underestimated. A good team is a "group of people that are interdependent and bound together by their reliance on each other".[32 p174] Open communication amongst team members can prevent errors from occurring in the operating theatre and, therefore, reduce the risk of harm to patients.[33] The PNSA, attributed with extensive collaboration, communication and leadership skills has the ability to change the dynamic within the operating theatre, and generate a positive professional culture within the operating theatre. Utilising these skills, the PNSA can generate cohesion between medical and nursing teams, increase communication and enhance efficiency, a notion supported by the perioperative nurses in this study, by identifying operating theatre efficiency as the second most important quality of the PNSA. The perioperative nurses and surgeons consider the PNSA to have an understanding and perspective of both the surgical and nursing roles within the perioperative environment, in ways a medical assistant may not.

The PNSAs insightful perspectives of both the surgical and nursing consideration of surgical care, may result in an improved professional culture by optimising communication between both professional domains and facilitating improved communication between the entire perioperative team. Teams that work in close collaboration have confidence, trust, and support in each other and maintain team attachment to achieve positive outcomes.[32,33] The majority (92%, n=49) of perioperative nursing staff agree the PNSA has a positive effect on the culture within the operating theatre, a theme strongly echoed by the five surgeons interviewed.

Collaboration was also associated with collegiality, where collegiality emerged as a strong phenomenon from the surgeons in this study. Once a surgeon reaches the level of consultant, they practice within a more independent environment and are rarely afforded the opportunity to observe how other surgeons undertake the same procedure. For PNSAs that work with a number of different surgeons, the collaborative nature of surgery and trust the PNSA develops with a surgeon may provide opportunity for new and innovative approaches for a procedure to be considered, as postulated by the surgeons interviewed.

Consistency was a quality of the PNSA that emerged as a strong theme within the surgeon interviews, and a theme which has recently emerged in current literature.[28] Consistency related to having the same assistant in the form of a PNSA, rather than rotating personnel to assistant with surgery. Consistency and dependability of the PNSA is particularly suited to highly technical specialist surgical domains and a quality valued by the surgeons interviewed.[28] This consistency in patient care and surgical assistance from the PNSA linked to the theme of 'reassurance' which emerged from this study. The perioperative nursing staff expressed assurance (in free text responses) knowing the experience and consistency of practice of the PNSA provides a continuum of perioperative care, as well as providing a broad perspective and insights into the holistic needs of the patient. The majority of perioperative nurses (92% n= 45) supported the notion the PNSA's knowledge of surgeon preferences leads to shorter operating times, which subsequently contributes to enhanced operating theatre efficiency.

The contribution of the PNSA to reducing surgical site infection (SSIs) generated incongruous results between the surgeons and perioperative nurses, with 84% (n=43) of perioperative nurses perceiving PNSAs to have a 'higher than average' adherence to sterile technique. The perioperative nurse group (84% n=43) felt the PNSA offers a higher-than-average level of aseptic technique, driven by their experience as a perioperative instrument nurse (scrub nurse) and their adherence to policies relating to sterile technique, double gloving and SSI; an area where research has identified perioperative nurse specialists have the ability to reduce SSI rates.[6,11,34] The surgeons interviewed either did not substantiate the findings from current literature or disagreed PNSAs contributed to a reduction in SSIs. A comprehensive study across multiple sites assessing SSI rates would identify the basis of a correlation between utilising PNSA's and SSI reduction; this is an area for future investigation.

Barriers to perioperative nurses pursuing PNSA roles in Australia were explored in this survey and were identified to be associated with the cost of education, amount of study

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and the amount of PNSA work available. The perioperative nurses also identified the PNSA role should be viewed as an APN role in Australia. The potential barriers to perioperative nurses becoming PNSAs was explored in the research to identify future potential workforce shortfalls, due to a projected increased demand for surgical services.[23, 29] PNSAs contribute to the provision of surgical service delivery in rural public health services, where demonstrated doctor shortages exist and advanced practice nurses are required to meet future service demand.[2, 23] With barriers to perioperative nurses pursuing the role of PNSA in Australia; however, and ongoing obstacles relating to professional recognition and accredited remuneration pathways for PNSAs, an expanding PNSA workforce or broader scope of practice for improved surgical patient care is improbable in the imminent future, and a challenge for the distant future.

The surgeon group identified there is some risk of utilising a PNSA, although it was not substantiated if the risk is any greater than with a medical surgical assistant. The limitations of this research relate to the broader applicability of the findings due to a small surgeon sample size (five surgeons) who primarily undertake minimally invasive robotic assisted surgery in the urological specialty and all research respondents practicing in private hospitals in South Australia. The role of the PNSA in South Australia is in its infancy with a high proportion working in the specialised field of robotic surgery, which is not a direct reflection of the broader PNSA roles undertaken in Australia. Greater participation numbers by both surgeons and perioperative nurses were limited by COVID-19 restrictions of social distancing and elective surgical practice at the time of the research. Social desirability bias, where participants answer questions in a manner, they deem to be more socially acceptable, to project a favourable image of themselves is a potential relationship limitation, as one researcher was known to approximately 50% of the perioperative nurse and 80% of the surgeon population, despite communication and advertisement of the study circulated by an impartial nurse educator. Further research is required to explore the benefits and qualities the PNSA contributes to the surgical team, patient and healthcare system to demonstrate the broader applicability of the qualities identified of the PNSA from this study.

CONCLUSION

The PNSA positively impacts the perioperative culture within the operating theatre, contributes to enhanced collaboration between the perioperative team and offer non-technical qualities to the patient's surgical experience. The consistency the PNSA conveys to both surgeons and perioperative nurses offers reassurance to the perioperative team, which is perceived to improve operating theatre efficiency. With further recognition and regulation of the role in Australia, there are opportunities for the PNSA to have a broader scope of practice in surgical service delivery and a greater impact of patient care.

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RESEARCH ARTICLES

Using the Theoretical Framework of Acceptability to understand the acceptability of e-training for nurse led prevention of unwanted sexual behaviour in Australia's residential aged care services

AUTHORS

MEGHAN T WRIGHT BScAdvGlblChal(Hons)[1]
DAISY E SMITH BA AppSc (Psych)[1]
CHELSEA S BAIRD BMed(Sci), MBBS(Hons), FRACP[1]
JOSEPH E IBRAHIM MBBS, PhD, FRACP[1]

1. Health Law and Ageing Research Unit, Department of Forensic Medicine, Monash University, Melbourne, Victoria, Australia.

CORRESPONDING AUTHOR

DAISY E SMITH, Health Law and Ageing Research Unit, Department of Forensic Medicine, Monash University, 65 Kavanagh Street, Southbank Victoria 3006, Australia. Email: daisy.smith@monash.edu

ABSTRACT

Objective: The aim of this study was to evaluate the acceptability of one specific e-training (intervention) for prevention of unwanted sexual behaviour in Australia's residential aged care services using the Theoretical Framework of Acceptability.

Background: Aged care staff are of fundamental importance in unwanted sexual behaviour incident management and prevention. The research team developed and implemented an evidence-informed intervention designed to increase awareness, promote collaborative practice, and improve prevention and management of such incidents in aged care. Current acceptability of training on this topic is yet to be studied despite it being recognised as a key factor for successful implementation and translation into practice.

Study design and methods: This is a qualitative, cross-sectional study employing semi-structured telephone interviews with actively working enrolled and registered aged care nurses who had completed the intervention. Acceptability of the intervention was measured with the Theoretical Framework of Acceptability. Of the 36 participants that signed the consent form, 18 completed interviews. One participant was excluded from analysis as they did not complete all modules of the intervention.

Results: Analysis revealed favourable evaluation in all seven domains of the Theoretical Framework of Acceptability, finding high acceptability of the intervention amongst all participants. The intervention aligned with participant's values and the content was perceived to fill a knowledge gap. This is showcased in participants unanimous belief that it would be helpful for all front-line aged care staff to receive the intervention frequently. Although participants showcased high acceptability of the intervention, participants recommended that sexuality content be included before detailing unwanted sexual behaviour, and that this content inclusion may increase awareness and understanding of unwanted sexual behaviour.

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Conclusion: Participants reported this e-training to be highly acceptable. They believed it has potential to improve attitudes and awareness of incidents in aged care. However, favourable results may reflect a personal interest with the topic, for example, the content aligned with their personal values, experience, and beliefs. More research is needed to understand both the acceptability and the efficacy of the training short and long-term.

Implications for research, policy, and practice: This study indicates that larger scale national staff training on this topic is possible and considered necessary by the sample. Future national policy should explore the inclusion of this topic in the curriculum standards. Future research should focus on evaluating the efficacy of the training in changing attitudes, awareness and influencing professional practice.

What is already known about the topic?

- Known prevalence of unwanted sexual behaviour in aged care suggests most nursing staff will be required, at some stage, to provide care to a resident who has been a target, or exhibitor of unwanted sexual behaviour.
- Previous studies of this pilot intervention indicate that it provides a useful model and curriculum of specific topics to guide development of training on unwanted sexual behaviour initiatives nationally and internationally.
- Acceptability of healthcare interventions is a critical measure in facilitating their implementation and in this instance, capacity of the aged care workforce to be trained on unwanted sexual behaviour.

What this paper adds

- E-training about prevention of unwanted sexual behaviour is acceptable to aged care nurses.
- E-training filled an existing program gap in education provision and addressed current staff knowledge deficits that aged care nurses perceived as important for better resident care and reducing work related stress.
- Lack of prior learning about intimacy and sexuality hampered optimal learning about prevention of unwanted sexual behaviour.

Keywords: sexual violence, online learning, qualitative, interviews, aged care, aged care nurses

OBJECTIVE

The aim of this study was to evaluate the acceptability of an e-training course (intervention) for prevention of Unwanted Sexual Behaviour (USB) in Australia's Residential Aged Care Services (RACS) using the Theoretical Framework of Acceptability (TFA).

BACKGROUND

Prevention and management of USB is a global challenge. Unwanted sexual behaviour encompasses both criminal aspects of sexual assault (commonly described as sexual violence) and 'unwelcome sexual behaviour' (e.g., such as unwelcome sexual conversations and comments).[1]
A major barrier to addressing this challenge, especially in older vulnerable populations, is an underling and incorrect assumption that USB does not occur in older persons. In Australia, an estimated 50 incidents occur in RACS (also known as long-term care, social care, and nursing homes) every week across the nation.[2] Internationally, the prevalence of USB in long-term care as reported by residents is approximately experienced by <1% with major implications for the victim-survivors, families, and the community.[3]

Addressing USB in older vulnerable populations is particularly challenging as it remains the most under recognised and under reported form of elder abuse internationally.[4] Additionally, globally there is a lack of proactive large scale multi-dimensional integrated and effective strategies which have undergone long-term evaluation.[5] In Australia, USB in RACS is largely unaddressed with the exception of the requirement for aged care providers to adhere to mandatory reporting obligations for accreditation and funding.[2] This approach is inadequate as it does not address the aged care staff's lack of awareness of USB, inability to recognise incidents and limited expertise to offer survivors appropriate support.[1, 6]

Strategies that improve front-line healthcare personnel awareness and competence are of fundamental importance in USB incident management and prevention.[7] Training of staff in healthcare settings improves their awareness, confidence, and skills to respond to sexual assault survivors.[8-10] There is a paucity of training for aged care staff addressing USB and limited empirical research describing the effectiveness of the available training.[1] In response to this gap, our research team developed and implemented an evidence-informed e-training (intervention) designed to increase awareness, promote collaborative practice, and improve prevention and management of resident-to-resident USB incidents in RACS.[11]

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Affective Attitude	Burden	Ethicality	Intervention Coherence	Opportunity Cost	Perceived Effectiveness	Self-efficacy
How an individual feels about taking part in an intervention	The perceived amount of effort that is required to participate in the intervention	The extent to which the intervention has good fit with an individual's value system	The extent to which the participant understands the intervention and how it works	The extent to which benefits, profits, or values must be given up to engage in an intervention	The extent to which the intervention is perceived as likely to achieve its purpose	The participant's confidence that they can perform the behaviour(s) required to participate in the intervention

Prospective acceptability	Concurrent acceptability	Retrospective acceptability
Prior to participating in the intervention	Whilst participating in the intervention	After participating in the intervention

FIGURE 1: THE THEORETICAL FRAMEWORK OF ACCEPTABILITY CONSTRUCTS AND THEIR DEFINITIONS[13]

Acceptability of an intervention is a key factor for successful implementation and translation into practice.[12] The Theoretical Framework of Acceptability (TFA) uses seven different constructs (Figure 1) to explore the real-world barriers and facilitators for an intervention.[13] The TFA framework also reflects the extent and appropriateness based on anticipated or experienced cognitive and emotional responses to the intervention.[13] This framework has been applied to evaluate a wide variety of western healthcare educational interventions.[14,15]

Therefore, this study will investigate the acceptability of the USB in RACS intervention using the TFA.

STUDY DESIGN AND METHODS

STUDY DESIGN

This qualitative, cross-sectional study used semi-structured telephone interviews with actively working enrolled and registered RACS nurses to examine the acceptability of the USB in RACS intervention. Participants were asked questions around their experience and perceptions of the intervention *"Preventing unwanted sexual behaviour in residential aged care services"* (interview questions Appendix 1). Interviews were conducted in November and December 2020 and are described in accordance with the consolidated criteria for reporting qualitative studies (COREQ Appendix 2).

INTERVENTION

A self-directed e-training was developed by the research team to aid aged care nurses to better detect, manage, and prevent incidents of resident-to-resident USB in RACS (curriculum guide, Appendix 3). An overview of the intervention learning aims is provided in Figure 2. In brief, the course comprised five learning modules addressing the following topics relating to USB between residents: definitions and identifying characteristics of USB, management of incidents, targets and resident exhibitors, prevention strategies and handling and disclosing of information relating to USB incidents. It concluded with a clinical case study which consolidated learning drawing on content from all modules. The intervention was available online to participants for two weeks and had to be completed in that period (Group 1: 21 Sept – 5 October 2020; Group 2: 12–26 October 2020).

SETTING AND SAMPLE

Figure 3 details Australian RACS resident and workforce population rates and demographics in Australia. The study was conducted in Melbourne, Australia. Eligibility for participation was not restricted to this location. Participants were selected from the target population if they had met the following requirements, (a) actively working in Australia as an enrolled or registered nurse in a RACS, (b) had completed all five modules and (c) also completed the pre-test and post-test evaluation survey, therefore a relationship was established prior to this study. Two-weeks after the post-test survey end date, participants were contacted via email and/or telephone inviting them to participate in the evaluation interviews and to select a time for their interview. Interviews were then conducted approximately two to three months after they had completed the intervention. Appendix 4 details the complete study timeline. Participants were not provided with any incentives or reimbursement to participate at any point of the research. As the interviewer was one of the coordinators of the intervention, participants were clear about their interest in the project.

ETHICS APPROVAL

Ethics approval was obtained (Project ID: 23702, see Appendix 5). All participants were emailed a plain language information sheet. Signed consent forms were required to be returned to the research team via email in order to participate in the interviews.

INTERVIEW ITEM DEVELOPMENT

The research question guiding the development of interview items was *"what was the overall acceptability with the interventions content, structure and delivery, and how could it be improved?"* Interview items were developed, and pilot

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Intervention Module	Intervention Learning Aims
Module 1 – Defining Unwanted Sexual Behaviour in RACS	• Identify misconceptions about older peoples' sexual expression and experience of unwanted sexual behaviours. • Define unwanted sexual behaviour and understand how the different sub-categories are determined. • Define and identify Commonwealth of Australia criteria for 'reportable incidents' of unwanted sexual behaviour in aged care.
Module 2 – Identifying characteristics of Unwanted Sexual Behaviour in RACS	• Describe and identify the common risk factors for the occurrence of unwanted sexual behaviour in residential aged care. • Understand how unwanted sexual behaviour presents, impacts and could be prevented in a person with cognitive impairment in residential aged care. • Identify the major barriers to detecting and prosecuting incidents in residential aged care.
Module 3 – Detection, Management and Support in Incidents of Unwanted Sexual Behaviour in RACS	• Identify physical, behavioural, emotional and psychological indicators of unwanted sexual behaviours in residential aged care. • Identify management techniques of suspected, witnessed and disclosed incidents of unwanted sexual behaviours in residential aged care. • Explore incident management techniques for target's who are cognitively impaired. • Review documentation requirements for incidents and legal investigations.
Module 4 – Managing Resident Exhibitors and Prevention strategies of Unwanted Sexual Behaviour in RACS	• Identify techniques to manage resident who are exhibitors of unwanted sexual behaviour. • Identify techniques for monitoring sexual expression in residents. • Identify strategies for preventing a resident engaging in unwanted sexual behaviour.
Module 5 – Handling and Disclosing Information Concerning Unwanted Sexual Behaviour in RACS	• Define and describe information that is personal, private and confidential. • Understand the privacy and confidentiality obligations for aged care staff and others when managing incidents of unwanted sexual behaviour. • Review and understand the role of substitute decision makers during incidents of unwanted sexual behaviours.

FIGURE 2: INTERVENTIONS LEARNING MODULES, MODULE TITLES AND CORRESPONDING LEARNING AIMS

Australian RACS resident population rates and demographics	Aged care workforce populations and demographics
The term 'residential aged care services' ('RACS') is used in accordance with the Australian Government Department of Health ('Department of Health') definition. This refers to special-purpose facilities which provide accommodation and other types of support to residents over 65 years old, including assistance with day-to-day living, intensive forms of care, and assistance towards independent living. Such services are provided to people who can no longer live independently.[2] In Australia in 2019-2020, there were 2,722 RACS operated by 845 approved RACS providers. In 2019, 244,363 people received permanent residential aged care (RAC) at some time during 2019, this representing an increase of 1,751 from 2018–19.[16]	The most recent aged care workforce survey estimates over 366,000 workers in RAC with more than 240,300 in direct care roles. Estimates include nurses 22,455 nurses and approximately 154,000 personal care workers. Females make up most of the RAC workforce (87%) and RAC staff are also generally older (45-65 years+, 55.2%).17 Additionally, the average ratio of direct care workers to operational places in Australia is 0.78. Registered nurses report spending less than 1/3rd of their work time caring for residents, whereas 46% of enrolled nurses spent more than 2/3rds of their time on direct care tasks in a typical shift.[17]

FIGURE 3: BACKGROUND INFORMATION ON OCCUPANCY RATES AND WORKFORCE POPULATIONS' DEMOGRAPHICS

tested internally by the primary researchers (JI, DS, MW) prior to an external review by colleagues not connected with the research project to evaluate whether the questions were appropriately expressed to measure the items of interest (Appendix 1). The research team was predominantly female (*DS,MW*), tertiary educated (*JI, DS, MW, CB*) in biological (*MW*) and social sciences (*DS*), and geriatric medicine and health science (*JI, CB*) researchers.

DATA COLLECTION

All interviews were digitally recorded by a portable audio recorder by one researcher (*MW*). Questions contained nine open-ended follow-on prompts (Appendix 1). Interviews were recorded on an audio device over the phone and transcribed using a professional transcription service. Face-to-face interviews were not conducted due to COVID-19. Field notes were taken during and after interviews. Transcripts were returned to participants for optional review of inaccuracies, and no feedback was received. Participants were instructed to notify (*MW*) of any desired revision.

The length of interviews ranged between 22 and 65 minutes. Interviews were conducted between 23 November and 14 December 2020, with one researcher (*MW*) and one interviewee present. There were 591 minutes of interview data collated, totalling 222 pages of transcript analysed.

DATA ANALYSIS

The TFA Framework[13] previously described was used to deductively guide the analysis of this study. Two researchers (*DS, MW*) independently and concurrently conducted the analysis of transcribed interviews using NVivo12. Per deductive analysis of TFA, the seven overarching constructs were used to generate themes (Table 1). Coding was conducted independently by the two researchers (*DS, MW*) to enable investigator triangulation[18], thematic discussion, resolve any discordance, and reach consensus.

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RESULTS

TABLE 1: OVERVIEW OF THEMES, SUBTHEMES, EXAMPLES OF IDENTIFIED NARRATIVES, AND CORRESPONDING TFA CONSTRUCT

TFA Construct & Broad Themes		Sub-Themes	Supporting quotes	Temporal perspective
ETHICALITY	**Participants value education**	Intervention content relevant & interesting	*"I should have read this when I was doing my training the same time that I was learning about wounds and blood pressure and hygiene, I should have learned about this… [It is] A very important topic. It's a topic that comes up a lot." (P18)* *"It [the course] really fits into my workspace. It fits in with my role as an RN, an educator, as a care coordinator and now as a site manager. The course was interesting… I feel more confident now" (P5)*	RA
		Self-development	*"I'm someone who really likes to do trainings and things like that, I like to always learn stuff." (P2)*	PA
	Participants value their occupation	Person centred care	*"We [the students in this course] are leaders …that tend to take the role a little bit more seriously rather than just a pay-check but are there [in aged care] because this is what we love to do... We see [residents] as people rather than an abstract construct." (P3)*	CA
	Participants agree with intervention topic	Incidents occur in RACS	*"Oh, [unwanted sexual behaviour] is a big problem already… it's something we need to seriously look at" (P16)"* *"I get lots of questions from the managers…about what's going on with the facility, and how to deal with … lots of obviously physical abuse and sexual abuse" (P1)*	PA
AFFECTIVE ATTITUDE	**Workplace attitudes to USB**	Ageism & Sexism	*"Staff are quite aghast that elderly people might have any sort of sexual desire or identity…and will say…well, we didn't see it, or did it happen? Or "Oh she's got dementia" you know, fobbing it off." (P12)* *"You want to do the right thing, but you are sometimes just limit because the family wants something, and the resident wants something." (P14)*	PA
		Taboo Topic	*"I think it's a hard conversation that no one wants to have." (P17)*	PA
		Incidents stressful & complex	*"a challenge where you have people with quite significant cognitive impairment sharing accommodation with other people, so that's going to be a problem, and addressing that is always going to be a problem" (P16)*	PA
	Past experiences with USB	Poor management	*"I worked at another facility …and I had … a reportable incident and it was allegation of rape. The manager at that facility said, "You've got 24 hours to report don't worry about it, we'll do it tomorrow." And I wasn't satisfied with that. So…I moved facilities…[and] have taken this course." (P3)* *"We've been brushing a lot of this under the carpet because they've had dementia". (P16)*	PA
		Incident classification & reporting confusion	*"We've also got lots of different cultures here, so what one person feels is appropriate, another person doesn't" (P10)* *"I felt I really didn't know where we stood and what to do, because you're thinking, "What sort of consent is this? What's marriage? Who's got the say? And how do we find out? Can we just call the police?" (P13)"*	PA
		Reactive management	*"But they [RACS staff] are not all that proactive." (P12)*	PA
	Attitude towards other training	Topic neglected	*"I don't think it's [USB topic] addressed adequately within the enrolled nursing training package." (P15)* *"I've never done any official training other than mandatory reporting… it [reporting training] wasn't to that level [that the current intervention provided] … the education that I've had is more on the RN level where you report it to the management, and you make sure that the hierarchy is followed" (P10)*	PA
		Intervention needed	*"You [RACS nurses] just don't have the resources. But people like you, if you bring it to light, you help us get resources." (P17)* *"it's good initiative, the course for nurses...we don't have specific training…we need to improve a lot." (P14)*	RA
BURDEN	**Workforce strain**	COVID-19	*"I think COVID's had an impact in aged care just period." (P9)*	PA
		Lack of industry resourcing	*"Because it is, it's a bloody hard job. It's the hardest thing I've ever done, aged care. And it's just so frustrating. Because you just don't have the resources. But people like you, if you bring it to light, you help us get resources." (P10)*	RA
		Low-staffing levels	*"We are so understaffed it is dangerous. Residents are becoming incontinent because we can't get there to take them to the toilet. (P14)*	PA
		Time burden	*"It was quite a bit of information. it would be good if there were a bit more in-between" (P17)*	CA
		Change fatigue	*"It's important to understand that there's a lot of stress on aged care at the moment, so the staff are not as open to new things as they probably were a year or so ago" (P10)*	RA

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TABLE 1: OVERVIEW OF THEMES, SUBTHEMES, EXAMPLES OF IDENTIFIED NARRATIVES, AND CORRESPONDING TFA CONSTRUCT (CONTINUED)

TFA Construct & Broad Themes		Sub-Themes	Supporting quotes	Temporal perspective
BURDEN (continued)	**Burden of topic**	Not distressing	*"I felt safe. I knew that the resources were there, and you guys were there, and you were very good at letting the learner know that." (P17)* *"I think the support behind the course was above and beyond" (P16)*	CA
INTERVENTION COHERENCE & SELF-EFFICACY	**Intervention operation**	High understanding, & high ability	*"It [the course] was all really interesting. I actually redid it twice. I went through the whole thing twice." (P12)*	RA
		Minor IT issues.	*Besides the IT that was a bit frustrating …No, I can't really point out anything that could be changed really, no. (P2)*	RA
OPPORTUNITY COST	**Perceived future opportunity costs**	Challenge cultural beliefs	*"But personal care workers sometimes [come from different] cultural backgrounds, [are] sometimes very young …and it can be really hard for them to cope with all these sensitive matters. The course might be too hard for them." (P6)*	RA
		Challenge values	*"Lots of staff won't care because they think "Old people don't behave like that"." (P4)*	PA
PERCEIVED EFFECTIVENESS	**PRE-intervention**	Poor confidence	*"Very limited [confidence to manage USB before the intervention]. I was having been confident because I knew my organisation would have given me the support, I needed to handle the situation, but I didn't have much confidence in my own ability, but yeah." (P18)* *"Probably about 2 out of 10 [confidence to manage USB before the intervention] …I knew nothing. and I would have found it very confronting" (P11)*	PA
		Poor awareness	*"[Before the intervention] I think it [unwanted sexual behaviour] probably could have happened in front of me and I might not have even truly recognised it for what it was." (P11)*	PA
	POST-intervention	Improved awareness	*"I'm more aware. I've done the course, I'm more aware of it [unwanted sexual behaviour]" (P17)*	RA
		Improved knowledge and attitudes	*"I learned a lot from the course, and I thank you very much...having the knowledge [from the course] was good, because before the course, I would have probably been laughing with the others. Because I just, I would not have known. So no, I was well-prepared, and I thank you for that." (P11)*	RA
		Did not retain all key learning objectives	*I've forgotten the... I think there is a list on every page of the online training of the section of people you can call but I didn't write them down, wasn't there? (P7)*	RA
		Improved & changed behaviours	*"I don't know what I'd have said or done had I not had the knowledge that you guys provided." (P11)* *"From a clinical point of view, I feel like I'm able to action it a lot quicker. If I saw someone do that and I thought, "That's unusual," I go and I do a urinalysis, do some further testing, delirium screening. I feel like I'm more proactive within my role because of the course." (P18)* *"At least now I've got a real strategy for if an event occurs, I've sort of worked it out in my mind how I'd approach it and hoping to get the best results." (P12)*	RA
		Poor prevention knowledge retention	*"Well, I think with prevention it's something that, it doesn't really occur to you until something [an incident] happens." (P4)*	RA
	Feedback	Mandatory, annual training for all staff	*"Something that everybody should do at least yearly, and certainly when they first start. When everyone starts, I have to do their manual training and their food handling and all of that sort of stuff. And it should be right in there with them." (P11)* *"Oh, look, I think it should be mandatory. … We have in our facility…two registered nurses, two enrolled nurses and the rest are [personal care workers]. So, they would benefit immensely. They're the hands-on people, they're the ones that are working with our resident's day in and day out." (P4)*	RA
		Sexuality training	*"As kind of a starter, so it'd be good to have sexuality in aged care, and then the whole" (P17)*	RA

Legend: CA = Concurrent Acceptability; RA = Retrospective Acceptability; PA = Prospective Acceptability

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PARTICIPANTS

Of the 39 participants that completed the post-test survey for the intervention 18 completed in-depth interviews. Data saturation occurred at interview eight. Participants were majority female identifying (13/18, 72.2%), aged between 35-64 years (13/18, 72.2%), with over six years of experience (14/18, 77.8%) and most had not completed any training for prevention or management of sexual violence in the previous 12-months (13/18, 72.2%) (Table 2). Only one participant was excluded as they did not complete all modules of the intervention. No repeat interviews were carried out.

TABLE 2: PARTICIPANT CHARACTERISTICS, INCLUSIVE OF: SEX, AGE, YEARS WORKING IN RACS, AND PREVIOUS SEXUAL VIOLENCE TRAINING UNDERTAKEN

	n (%)
Sex	
Female	15 (83.3)
Male	3 (16.6)
Age Group (years)	
≤ 34	3 (16.6)
35–44	5 (27.7)
45–54	4 (22.2)
55–64	4 (22.2)
≥ 65	2 (11.1)
Years working in RACS	
≤ 5	4 (22.2)
6–10	6 (33.3)
11–15	3 (16.6)
≥ 16	5 (27.7)
Sexual violence training	
Yes, external education provider at employer's request	1 (5.5)
Yes, external education provider at my own initiative	1 (5.5)
Yes, internal/in-house training	1 (5.5)
Yes, self-directed	2 (11.1)
No	13 (72.2)
Total	**18 (100)**

QUALITATIVE FINDINGS

Participants spontaneously referred to six of the seven TFA constructs. Only *opportunity costs* were not spontaneously identified by participants, however, it was acknowledged when asked if they believed other RACS nurses and/or personal care workers would express interest in the intervention.

Findings are presented below for each TFA construct and their corresponding broader themes. Supporting statements from interviewees and interview themes are presented in Table 1.

ETHICALITY

This construct centres on the extent to which the intervention was perceived to be a good fit with the participants' value system. *Ethicality* was commonly expressed in interviews in the following three broad themes. First, participants value education because they value self-development or the course content. Second, participants value their occupation, and third, participants value the USB subject matter.

Values Education

All participants reported valuing education through either a retrospective appreciation of the course, or a prospective motivation to engage with it. The intervention content was deemed as relevant and interesting and participants valued the opportunity to learn about USB. Many participants also prospectively valued their own self-development expressing their motivation to continuously improve their knowledge and skills in an array of areas (e.g., dementia care) which incentivised them to undertake the intervention.

Values Occupation

Participants expressed the intervention aligned with their commitment to delivering 'person-centred care' and positive sentiment toward their professional role irrespective of their overall job satisfaction in the workplace. Participants presented as willing to learn anything that would make them better carers, often referring to the needs of their residents as more important than their personal comfort. The sincerity of this sentiment was evident through respecting and promoting the rights of residents, including their right to consensual sexual expression, and their dedication to improve resident care despite the strains faced by the sector (further discussed in the construct *'burden'*).

Participants Valued the Intervention Topic

The vast majority of participants expressed prospective acceptability of the intervention through their belief that USB in RACS is a problem, therefore signifying that the topic aligns with their values. Participants also valued their own comfortability in being able to hold open and honest dialogues about consensual sexual intimacy in RACS between residents.

AFFECTIVE ATTITUDE

This construct is concerned with the participant's feelings and attitudes about participating in and completing the intervention. All participants reported very positive feelings about the intervention. It was also found that prospective attitudes to the topic influenced acceptability of the intervention. Three broader themes were: workplace attitudes to USB, past experiences of USB in RACS, and lack of available training regarding USB.

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Workplace Attitudes towards USB

Participants expressed their attitude toward USB in RACS often clashed with workplace values. For example, some participants detailed discordance between family and RACS staff, or between RACS staff, in relation to consensual sexual expression (e.g., the prevention of consensual sexual expression), or the credibility of someone with a cognitive impairment (e.g., dismissing sexual violence if a cognitively impaired resident is the survivor or exhibitor). As noted in '*ethicality*', participants advocated and wished to promote sexual safety. Participants also noted that USB is a taboo topic and recognised that attitudes towards sexuality and USB may be influenced by a sector-wide lack of awareness on the topic. For example, the inability to refer to sexual acts or genitals and using incorrect terminology may serve as a barrier to detection and management of USB or consensual sexual practices. The majority of participants reported that USB is a complex and stressful issue, especially when it involves residents with a cognitive impairment. These experiences motivated participants to complete the intervention.

Past Experiences with USB in RACS

Participants often provided examples of poorly managed USB incidents. Many participants noted there is confusion amongst RACS staff regarding what constitutes consensual activity and incidents that are reportable to the regulator. This was often illustrated by participants describing incidents that occur between persons with cognitive impairment, or incidents that occur between married residents. When discussing these incidents, participants were confused by constructs such as capacity to engage in sexual activity and whether consent is implied by matrimony. Some also noted that confusion around capacity resulted in the prohibition of consensual intimacy between residents or the failure to prevent and protect a resident survivor if the perpetrator was a spouse.

All participants described reactive rather than proactive management strategies, such as monitoring suspected or alleged resident exhibitors. Monitoring was the most common and relied upon prevention technique employed, despite frequent discussions detailing the time constraints and poor staffing ratios frequently experienced (described in *'burden'*). Participants often discussed that monitoring residents allowed them to prevent an incident but did not detail any additional preventative measures to avert another attempt by the resident exhibitor. Just as concerning, were the participants that did not express an understanding that the intended victim might have still required emotional support after a resident exhibitor's unsuccessful attempt. Interestingly, participants did not discuss the utilisation of external support services for resident survivor, exhibitor, or incident management, despite this being prominent throughout all module content. Lack of discussion relating to the use of external support services during incident management indicated to the interviewer that the importance of such collaboration was perhaps not understood. This was also suggested during participants discussion of ill-effective, reactive management measures discussed in *'Perceived Effectiveness'*.

Lack of available training on USB

All participants had a positive attitude towards the intervention. Participants stated the training was valuable as most had not received formal training about USB in RACS. Participants also reported that the existing training addressing elder abuse did not adequately address USB in RACS. The elder abuse training was too broad and/or too focused on mandatory reporting requirements. Participants proposed these factors contribute to poor workplace attitudes towards the topic, as well as poor USB incident detection, management, and prevention. Participants emphasised that more in-depth USB incident management and prevention education is needed as they experienced with the e-training. Furthermore, they considered it should be made mandatory for nurses practising in RACS.

Whilst some expressed transferring learned knowledge from the intervention to their workplace peers, most participants preferred a facility wide roll out of the intervention. Participants implied that dedicated professional development regarding USB was needed rather than "informal learning' (i.e., learning through modelling, peer observation, and practice).

BURDEN

The construct *burden* references the perceived amount of effort that is required to complete the intervention. Discussions focused on workforce strain, and the emotional burden of the intervention topic.

Workforce Strain

Participants spoke often of the current strain on the sector due to the recent Royal Commission into Aged Care Quality and Safety's findings, historical and continuous poor staff-resident ratios, the increasing complexities of resident care needs, and the impact of COVID-19. Although all participants believed the intervention was relevant and necessary, some expressed this workforce strain and "change fatigue" as a barrier to staff recruitment and capacity to complete the intervention. In contrast, some participants expressed that the intervention could reduce their current stressors by providing RACS staff with effective resources to address existing gaps.

Emotional burden of USB

None of the participants expressed that the content was a distressing learning experience. Some participants expressed the online environment and support from intervention facilitators made the topic less burdensome and that they

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felt safe and supported. Further, most participants found it rewarding to learn a person-centred approach to USB. The majority made a clear distinction between their emotional response to managing an incident in their facility (which was stressful) and receiving education on the topic (which was empowering).

INTERVENTION COHERENCE & SELF-EFFICACY

All interviewees mentioned their ability to complete the intervention online (*self-efficacy*) which corresponded to their understanding of how the intervention worked (*intervention coherence*). As the interviews were completed post-intervention, all participants referenced or implied throughout the interviews their understanding of the intervention's purpose, how it operated, and were able to perform all mandatory tasks. These topics were discussed through the broader theme of *intervention operation.*

Intervention Operation

Most participants believed the intervention required little improvement. Most could not offer any comment when asked to identify elements of the intervention that they did not understand or could not complete. None of the participants disagreed with any of the intervention content, nor did they consider it was beyond their capacity to successfully complete. Feedback offered focused on the IT platform's functionality, suggesting that minor changes to the useability and design would increase engagement and improve the acceptability of the intervention.

OPPORTUNITY COSTS

None of the participants expressed that any benefits, profits or values were forfeited by themselves in order to complete the intervention. Participants were asked to speculate about how others may view these domains.

Perceived future opportunity costs

Some participants mentioned that the content presented in the intervention may challenge values and beliefs of some staff who come from different backgrounds or less experienced staff. For example, some participants stated that some colleagues do not believe that older people are sexually active or that they can be victim-survivors of USB and, some staff have difficulty discussing sensitive matters.

Few participants opined that for some RACS staff how they value the topic would not be offset or balance the cost of undertaking the intervention (e.g., time off work or days off).

PERCEIVED EFFECTIVENESS

It was not possible to test the actual efficacy of the intervention within this research. Rather, as per the TFA, this construct aimed to understand the extent to which the intervention was perceived by participants as likely to achieve its purpose. Closely related to participant's views on *affective attitude*, *ethicality* and *intervention coherence*, participants believed the intervention helped them improve their attitude, awareness, knowledge, and practice. The broader themes discussed were pre-intervention knowledge, attitudes and skills, post-intervention knowledge, attitude, and skills, and intervention feedback.

Pre-Intervention knowledge, attitudes, and skills

Prior to completing the intervention, many participants described poor awareness of the topic and poor confidence in detecting and managing incidents. This was often expressed as a consequence of inadequate training, poor collaboration between specialist services and a general lack of valuable resources. Some participants confessed previous poor attitudes to the topic prior to intervention completion, including lack of awareness of the magnitude and seriousness of incidents in RACS, or limited understanding of the trauma that residents with dementia may experience.

Post-Intervention knowledge, attitudes, and skills

Participants self-reported benefits at personal and workplace levels. Participants self-reported an improvement in their personal practice and also felt able to extend and transfer knowledge to other staff in their workplace. Participants' self-reported attitudes towards USB in RACS improved due to the knowledge acquired during the intervention. All participants expressed an increased confidence in either detecting, managing, and/or reporting incidents. Few participants reported an increased confidence to prevent USB. Some participants noted that the intervention prompted reflection on and/or a change to their current practice. Examples included improved attentiveness to resident behaviours, implementing new prevention techniques such as sexuality assessments and, reviewing workplace policies regarding USB. Interestingly, some participants' approach to USB remained reactive; that is, reporting incidents and monitoring alleged/suspected resident exhibitors, rather than the proactive approach advocated throughout the intervention.

Participant Feedback

Commonly discussed improvements included providing more information on sexuality in older people within the intervention content and that there be an annual mandated USB training for *all* staff, especially for more junior staff.

Expanding the intervention content to including more information regarding consensual sexuality in older people was believed by some participants to prevent the occurrence of USB or would help them distinguish between consensual verse non-consensual sexual activity. This distinction was often raised as a complex task, especially where cognitive impairment and capacity to consent issues were involved.

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All participants noted that to increase the sector's capacity to address USB, aged care staff in differing roles (especially personal care workers) need to receive training on this topic. Most considered mandatory training of staff would be beneficial for both residents and the RACS. All participants believed that mandatory training would help to achieve the intervention's aims. Other feedback included making content more interactive using additional case studies and audio-visual material.

DISCUSSION

STATEMENT OF KEY FINDINGS

This study assessed the acceptability of an e-training intervention regarding USB in Australia's RACS using the TFA framework. The outcome was a favourable evaluation in all seven domains, finding high acceptability of the intervention amongst all participants. It aligned with participant's values and the content was perceived to improve participants' knowledge and attitudes towards incident management. Most compelling, was that all participants stated that it would be helpful for all front-line RACS staff to receive the intervention and that it should be mandatory. Participants considered the intervention empowering by increasing their confidence in addressing a stressful workplace issue.

INTERPRETATION

Similar to other studies, participants described the current workplace climate as highly pressured. This is in part reflecting increased workload and stress due to COVID-19 as well as recent and chronic workforce shortage. These factors may result in the intervention not being prioritised within RACS.[19] This environment acts as a barrier to acceptability of the intervention at the sector level however, participants overcame this as they considered the subject matter as a high priority at a personal and professional level.

The majority of participants considered the aged care workforce as a whole has a substantial gap in USB knowledge. This may contribute to the dismissive attitudes and reactive approaches to managing incidents of USB. All participants noted that the intervention felt empowering, filled knowledge gaps, helped to prepare staff to manage USB, and as a result relieved this as a workplace stressor. The participants individually were highly motivated to learn and change practice which outweighed any barriers to completing the intervention.

In other studies, with RACS nurses, professional development was seen as a prerequisite for quality care.[20] The intervention fills an existing clinical education void in the sector which may have led to a more favourable response about the content being relevant as there were not any comparable interventions.[20] The flexible online delivery was highly acceptable to participants. This is consistent with these platforms for healthcare professionals generally being perceived as reducing the *burden* and *opportunity cost* of the intervention.[21]

Participants considered their overall awareness of USB in RACS improved post-intervention and expressed hope that this would lead to improved care for residents in the future. They expressed a preference for the intervention to occur more frequently and be required to complete earlier in their professional development.

Whilst all participants reported increased confidence in detecting, managing and/or reporting incidents, some were only able to detail reactive protective measures. This was disappointing as proactive prevention measures were an aim of the intervention (Appendix 3). Perhaps it is unrealistic to consider improving knowledge regarding proactive preventative measures could be achieved as many studies have highlighted that more than a single intervention is required to encourage cross referrals between organisations and to address the lack of prevention knowledge.[22-24] Collaboration between RACS staff, health professionals, and sexual violence experts is required to effectively manage all aspects of incidents. Inadequate collaboration between services creates major limitations in managing and supporting older survivors of sexual violence.[22]

A gap identified in the intervention by participants was the need for the provision of foundational information about sexuality in older people. Indeed, there is a paucity of empirical research about the sexual health needs of RACS residents and whether these are proactively or routinely assessed or supported by staff. What is known is that the sexual health needs of residents are usually only reviewed in response to an occurrence of incidents of sexually disruptive behaviour.[25] Further, existing taboos around the sexuality of older people may hamper the identification of USB.[26] Finally, an exploratory study in RACS setting affirmed that education about LGBTI older adults reduced misconceptions and empowered staff to provide more holistic care to residents.[27] Our study highlighted that staff's self-reported lack of knowledge about sexuality impacts their ability to manage USB especially when attempting to distinguish between consensual and non-consensual sexual activity.

GENERALISABILITY

As with all qualitative study generalising findings to anyone or any group is fraught. The traditional views about the purpose of qualitative studies are to explore the dimension of a problem rather than generalisability.[28] Interpreting whether the assessment of acceptability could be reflective of the views of nurses from other countries should be made with caution as the study did not have *a prior* intention to investigate generalisability. An additional caveat is this intervention was designed for the aged care staff in the context of the healthcare, regulatory, and legal system in Australia.

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STRENGTHS AND LIMITATIONS

To our knowledge, this is the first study to assess the acceptability of an USB in RACS e-training intervention. Limitations inherent to qualitative research are present, in addition the interviewees were a self-selected, convenience sample. This likely results in a more favourable response. Participants may have undertaken the intervention as it aligned with their own values regarding USB in RACS or experienced a need for such intervention. Research with more diverse participants, experience, and personal values would be useful for future research studying the acceptability of such an intervention.

CONCLUSION

Participants reported this intervention to be highly acceptable and it has potential to improve attitudes and awareness of USB in RACS. More research is needed to understand the effect on medium- and long-term outcomes such as better incident management, enhanced resident wellbeing, and reduction in USB. Future research should assess the short and long-term efficacy of the e-training in managing and reducing incidents of USB in RACS.

IMPLICATIONS FOR RESEARCH, POLICY, AND PRACTICE

All front-line healthcare professionals have a role to play in USB prevention and management.[29,7] Known prevalence of USB in aged care suggests most nursing staff will be required, at some stage, to provide care to a resident who has been a target, or exhibitor of USB. The intervention has two key attributes of being readily accessible and acceptable to participants, that facilitate large scale staff training.[8]

The intervention has the potential to contribute to improving the sector's response to incidents by empowering nurses to improve residents' care. Additional strategies will be required to augment the benefits of training such as policy reform, provision of resources, and legal and regulatory changes.[30] Future adaptations of the intervention that may increase *perceived effectiveness* and acceptability is the inclusion of content about sexuality and intimacy.

Future research requires exploration of this topic and how it impacts professional behaviours in short and long-term practice. Also worthy of exploration is whether mandatory training, as recommended by the participants, impacts on the acceptability and learning outcomes and organisation culture.

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REVIEWS AND DISCUSSION PAPERS

A protocol for responding to aggression risk in residential aged care facilities

AUTHORS

TERRI ROBERTON[1] DPsych(Clinical, Forensic), BA(Hons) Psych, MAPS

MICHAEL DAFFERN[1,2] PhD, MPsych, BSc(Psych)Hons

1. Centre for Forensic Behavioural Science, Swinburne University of Technology, Melbourne, Victoria, Australia
2. Victorian Institute of Forensic Mental Health (Forensicare), Victoria, Australia

CORRESPONDING AUTHOR

MICHAEL DAFFERN Centre for Forensic Behavioural Science at Swinburne University of Technology, Level 1, 582 Heidelberg Road, Alphington, Victoria, 3078, Australia. Email: mdaffern@swin.edu.au

ABSTRACT

Objective: To propose a provisional protocol which organises the existing knowledge base into a set of simple procedural guidelines to support residential aged care staff to respond in a consistent and effective manner when faced with situations where aggression is perceived to be imminent, ideally preventing aggressive behaviours from eventuating.

Background: Aggressive behaviours by older adults in aged care facilities have the potential to cause significant physical and psychological harm, particularly for other residents. Staff are increasingly discouraged from managing such behaviours with restrictive practices such as physical and/or pharmacological restraint. Instead, staff are encouraged to intervene *before* an incident takes place, using interventions that reduce the everyday risk of aggression, as well as those that are implemented when aggression is perceived to be imminent. However, for this to be implemented in a meaningful way, staff must be equipped with the knowledge, skills, and resources to intervene in ways that are respectful and effective. Developing a protocol for responding to imminent risk of aggression by organising the existing knowledge base into a set of straightforward guidelines would support staff to implement preventative strategies in a consistent and effective manner.

Study design and methods: A traditional/narrative literature review was undertaken to critique and synthesise previously published research to identify research that might be relevant to the construction of guidelines for responding to the risk of imminent aggression.

Discussion: This paper proposes a provisional protocol, consisting of a series of interventions for preventing aggression in residential aged care facilities: daily monitoring; de-escalating the situation; identifying and addressing situational triggers, providing an immediate therapeutic intervention, and considering medication. This protocol is necessarily provisional in nature and is intended to be further developed through theoretical critique, expert opinion, consumer feedback, and empirical evaluation.

Implications for research, policy, and practice: Research in four areas would improve the ability of staff to intervene in a preventative manner: (1) developing and validating a daily monitoring tool that would allow staff to identify when aggression is imminent; (2) continuing to build a methodologically sound body of evidence to support the use of specific primary and secondary preventative interventions; (3) understanding whether the causes and processes underlying aggressive behaviour by

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older adults with dementia differ from those without dementia; and (4) determining whether preventative interventions are equally effective for different groups within this population.

Keywords: Aggression, aged care facilities, older adults, prevention, risk

What is already known about the topic?
- Verbal and physical aggression by older adults in residential aged care facilities can cause serious harm to residents and staff.
- A wide variety of approaches to managing imminent risk of aggression in older adults have been proposed, but there is limited empirical evidence to guide staff in choosing the best approach.

What this paper adds:
- An integrated summary of the factors known to influence risk of aggression in older adults.
- A proposed protocol for managing imminent risk of aggression that organises the known literature into a set of clear, specific directions for staff.

INTRODUCTION

Older adults in aged care facilities who engage in aggressive behaviours often have complex physical and/or mental health needs and may have a diminished understanding of their environment and the impact of their actions. At the same time, these aggressive behaviours have the potential to cause significant physical and psychological harm,[1] particularly for other residents. It is crucial that staff are equipped with the knowledge, skills, and resources to intervene in ways that are respectful and effective. This paper reviews evidence for preventative interventions in aged care facilities and proposes a provisional protocol for preventing aggression in residents at heightened risk of imminent aggression.

BACKGROUND

When responding to aggression by older adults in aged care facilities, staff are increasingly discouraged from relying on containment strategies,[2-4] particularly restrictive practices such as physical and/or pharmacological restraint, which may culminate in residents receiving substandard and unsafe care.[5] Such strategies are associated with serious physical and psychological consequences, including falls, cognitive decline, and even premature death.[6] It is widely agreed that these practices should only be used as a last resort, when a person is at serious and imminent risk of harm.[5] Instead, staff are encouraged to intervene *before* an incident takes place,[7] using interventions that reduce the everyday risk of aggression (*primary* preventative interventions), as well as those that are implemented when aggression is perceived to be imminent (*secondary* preventative interventions).[7]

In practice, several issues hinder the ability of staff to intervene in a preventative manner. Aggressive behaviour is often viewed as inevitable and this reduces staff motivation to try to prevent these behaviours.[1] Limited evidence regarding the effectiveness of preventative interventions can further dissuade staff from using these interventions and may increase reliance on containment.[8] Intervening in a preventative manner is particularly challenging when aggression is imminent, as it can be difficult for staff to: (a) bear in mind the myriad person- and situation-related factors that are likely to be related to aggression; and (b) consider a range of possible intervention strategies.

Developing a protocol for responding to imminent risk may address some of these issues by organising the existing knowledge base into a set of straightforward guidelines. Such a protocol would support staff to respond in a consistent and effective manner, ideally preventing aggressive behaviours.[9] There is early evidence from other health care settings that using a protocol linked to systematic structured risk assessment to respond to the risk of imminent aggression may reduce instances of aggression and reliance on coercive interventions.[10] While there is evidence that guidelines for the management of agitation and aggression may help to reduce disruptive behaviour in aged care residents with dementia,[11] there are currently no valid guidelines designed to guide staff on a day-to-day basis.[12] There is, therefore, potential value in developing a protocol that considers how to respond to imminent aggression.

Unfortunately, the development of such a protocol is hampered by a lack of empirical evidence, particularly with regards to non-pharmacological strategies.[13] While a range of potentially helpful interventions have been identified, empirical evidence for the effectiveness of these interventions remains limited, primarily due to methodological complexities and inconsistencies across studies.[8] Given the limited evidence base, it is crucial for any suggested protocol to draw upon theoretical models of aggression in older adults. Many of the models that are currently used to explain aggressive behaviour in older adults do so in the context of *behavioural and psychological symptoms of dementia* (BPSD), a cluster of behavioural symptoms commonly seen in older adults with dementia (e.g., wandering, agitation, repetitive questions, sexual disinhibition, and apathy).[14,15] The reliance on models of BPSD is unsurprising, given that older adults with dementia engage in a disproportionate number of aggressive

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behaviours in aged care facilities.[16] It is important to be cognisant, however, that these behaviours are also exhibited by residents *without* dementia.[17] Incorporating a model of aggression that can explain aggression among older adults with and without dementia will allow for a more comprehensive understanding of this behaviour. One such model is the General Aggression Model (GAM),[18] a comprehensive and general model of aggression that is applicable across various contexts and populations. Roberton and Daffern recently considered how the GAM may be applicable to older adults in aged care.[19] As a model that can explain aggressive behaviours exhibited by older adults, the GAM provides a suitable theoretical foundation when considering how to respond to aggression in aged care facilities.

METHOD

A traditional/narrative literature review was undertaken, led by the first author (TR) to critique and synthesise previously published research to identify research that might be relevant to the construction of guidelines for responding to the risk of imminent aggression. An initial search was undertaken using the following search terms: (aged care OR nursing home OR residential aged care facility) AND (aggression OR violence). The search terms were entered into four databases: CINAHL, MEDLINE Complete, and PsychINFO were searched using EBSCOhost, as well as the Cochrane Library. The search was limited to English-language papers published in peer-reviewed journals from 1980 to 2019. The initial search was supplemented by a search of the references of retrieved literature, as well as additional searches of relevant terms identified within the retrieved literature. Searches of Google and Google Scholar were performed in an effort to identify relevant non-analytic studies and expert opinion papers.

RESULTS

A PROPOSED PROTOCOL FOR RESPONDING TO IMMINENT RISK OF AGGRESSION

Overview

This paper proposes a series of interventions that staff in aged care facilities can provide when the risk of aggression rises, with the aim of supporting staff to respond in a consistent manner that ideally reduces the likelihood of aggressive incidents taking place whilst also reducing reliance on coercive and controlling interventions that may be best suited when the risk of aggression is high and when the consequences of aggression may be severe. This protocol is based on the available empirical evidence, using the GAM as a theoretical foundation where empirical evidence is lacking. Figure 1 sets out the components of the proposed protocol, each of which will be considered below.

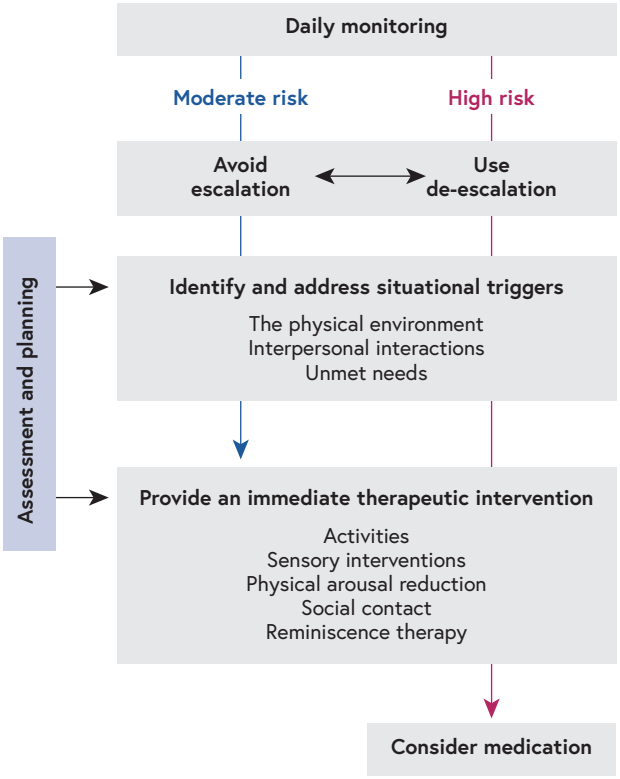

FIGURE 1. A PROPOSED PROTOCOL FOR RESPONDING TO IMMINENT AGGRESSION IN AGED CARE FACILITIES

DAILY MONITORING

The use of an aggression prevention protocol is dependent on staff being able to recognise early warning signs of aggression and accurately identify when residents are most likely to become aggressive.[20] However, this is notoriously difficult using clinical judgement alone.[21] In mental health units, structured, short-term risk assessment instruments are often used to assess the likelihood that an individual will become aggressive within the next 24 hours.[22] Used on a daily basis, these instruments increase the accuracy with which staff can identify people at heightened risk of aggression. They also help identification of people who are a low risk of imminent aggression thereby providing reassurance for staff who might then increase liberties for these people.[23]

Currently, no structured aggression-specific risk assessment instruments have been validated for use in aged care facilities. However, the two brief structured risk assessment instruments that have been shown to improve prediction of imminent aggression (within the next 24 hours) in inpatient mental health care settings – the Dynamic Appraisal of Situational Aggression (DASA)[24] and the Broset Violence Checklist (BVC)[25,26] – may be applicable. Recent research has sought to understand the degree to which existing tools such as these are suitable for use in aged care facilities, and suggests that existing assessment instruments will likely need to be adapted to increase their ability to reliably predict aggression in this population.[19] Once adapted, however, using an assessment tool as the first step in this protocol

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would allow for the identification of older adults at moderate or high risk (the meaning of which would need to be contextualised to the instrument) of imminent aggression and may alert staff to the need to begin implementing interventions to prevent aggression. Empirical research will be required to determine whether it is possible to separate out and characterise 'moderate' and 'high' risk people. If this is possible then the protocol may require modification, including delineation of strategies for these two groups. If these two 'groups' cannot be separated empirically using valid risk assessment instruments, then the protocol should not retain recommendations that pertain to 'low' and 'moderate/high' risk of imminent aggression 'groups'.

DE-ESCALATE THE SITUATION

Use de-escalation skills

When aggression is imminent, the priority for staff is to ensure the immediate safety of the resident, staff, and visitors, while helping the resident manage their emotions and maintain or regain control of their behaviour. This is the aim of de-escalation, a collective term for a range of verbal and non-verbal techniques designed to defuse anger and divert aggression.[22] De-escalation is perhaps the most widely used non-pharmacological and non-restrictive approach when dealing with the threat of aggression, and is recommended as a first-line intervention.[20]

De-escalation is accepted as an important strategy to prevent aggression across a range of care settings.[22] However, there is no widely agreed-upon definition and no 'gold standard' for how de-escalation should be conducted.[27] Recently, Hallett and Dickens sought to clarify the concept of de-escalation in healthcare settings.[20] Five attribute themes were derived from thematic analysis of 79 studies: *communication, self-regulation, assessment, actions,* and *safety.* Multiple components (including skills, knowledge, and personal features) were identified for each of these themes.

A consideration of how the GAM applies to older adults may help to broaden our understanding of what de-escalation skills may be particularly useful among this demographic. Deciding against aggressive behaviour involves reappraising any automatic aggressive tendencies or decisions.[18] However, many older adults, particularly those with impaired executive function, compromised impulse control, disinhibition, or disorganised thinking, may find it difficult to engage in these reappraisal processes.[19] Providing residents with information about the situation, making intentions clear, using simple words and phrases, allowing residents ample time to consider information and respond, helping residents to consider aggression-incongruent interpretations of the situation, reminding residents of their values, and being clear about potential consequences of aggression may all be useful.

Validate residents' concerns

De-escalation may be aided when staff validate residents' concerns, seeking to communicate that a resident's emotional response is normal or understandable given their personal experience.[28] Validation has been shown to decrease negative affect during angry situations.[29,30] Validating negative emotional states has been shown to reduce the likelihood of aggressive behaviours among adults who have difficulty regulating their emotions.[31] This approach is formalised in *Validation Therapy* and *Integrative Validation Therapy*,[32,33] but may be used informally when aggression is imminent.

Avoid triggers for escalation

Aggressive behaviour in older adults is commonly triggered by routine caregiving, such as when staff initiate personal care tasks or enter a resident's personal space.[34] While these actions are largely necessary for resident wellbeing, the approach taken by staff when completing such tasks can influence whether escalation occurs. Aggression appear to be less common when staff have adequate time to complete personal care tasks,[35] use person-centred techniques,[36] and show regard for patient autonomy.[37] It may be that if an older person is in an elevated risk state that some of these tasks can be briefly delayed, until risk subsides.

IDENTIFY AND ADDRESS SITUATIONAL TRIGGERS

Situational factors have a marked impact on aggressive behaviour. Residents are exposed to a range of stressors and it is useful for staff to proactively identify and address situational factors that have the potential to frustrate, confuse, or frighten.

The physical environment

Adapting the physical environment to suit the resident may reduce agitation.[38,39] However, adapting the environment is also likely to serve as a useful secondary preventative strategy when risk of aggression is imminent. While this depends on the individual resident, a small number of potential changes have been identified, including: decreasing environmental stimulation (e.g., excess noise, bright lighting, offensive smells); increasing natural light and fresh air; and ensuring that the temperature of the room is comfortable.[40] While there is no experimental evidence for the degree to which making such changes may be effective, we know from the adult aggression literature that hot temperatures, loud noises, and unpleasant odours increase the likelihood of aggression.[41]

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Interpersonal interactions

Interpersonal 'provocation' has been identified as one of the most important single causes of aggression.[18] Provocation may be experienced during interactions with staff, co-residents, or visitors, as well as the presence of unfamiliar individuals, a sense of overcrowding, or a perceived lack of privacy.[7,34] Identifying and addressing sources of interpersonal provocation may help to avoid situations that trigger aggression.

Unmet needs

Many older adults with dementia experience impairments in both communication and capacity, often resulting in unmet needs.[42] Resolving unmet needs is thought to play a crucial role in managing BPSD. Several common unmet needs have been identified.[42] First, the resident may have unmet physiological needs, including hunger, thirst, need to use the toilet, wet/soiled undergarments, fatigue, or skin irritation.[39] Second, the resident may have acute medical issues that need attention, such as delirium, infections, metabolic conditions, or CNS insults.[43] Third, the resident may be in pain or discomfort.[44] Fourth, the resident may be lonely.[42] Finally, the resident may be bored and/or lack meaningful activity.[45]

PROVIDE AN IMMEDIATE THERAPEUTIC INTERVENTION

Introduction

Once staff have utilised de-escalation and addressed situational triggers and/or unmet needs, residents should be engaged in interventions that are therapeutic. Despite limited empirical evidence, it is widely accepted that non-pharmacological approaches to managing imminent aggression should be implemented, particularly given that many of these interventions are low-cost and relatively easy to implement, with no evidence of adverse effects.[13,38] Therapeutic interventions may be useful during times of imminent aggression if they: distract from situational triggers; meet unmet needs (such as by promoting a sense of autonomy, meaning, or purpose; or fostering connection between the resident and others); increase positive affect and/or decrease negative affect; reduce arousal in a resident who is highly aroused; or give the resident time to engage in reappraisal processes.

Activities

There is evidence that engaging residents in meaningful and pleasurable activities helps to reduce the likelihood of aggression both on a day-to-day basis and when residents are becoming agitated. A recent Cochrane review found low-certainty evidence that offering older adults in community settings personally tailored activities may reduce challenging behaviours.[46] This is consistent with a previous systematic review which found engagement in activities, such as gardening or cooking classes, tended to reduce emergent (new-onset) agitation among older adults with dementia in residential facilities.[47] However, in this review, individualising activities did not appear to strengthen these effects, suggesting that the provision of general activities to residents is sufficient to reduce agitation. In these reviews, activities were found to be primarily beneficial for reducing the likelihood of aggression over the short-term, suggesting they may be particularly useful during periods when aggression is imminent.

Sensory Interventions

A review of 13 studies of sensory interventions in older adults with dementia found that these interventions generally improved agitation during the time the intervention took place.[47] The interventions with the most empirical support for the immediate or short-term reduction of agitated behaviour are massage and touch interventions,[48,49] as well as formalised and informal music therapy.[8,47,50]

Social contact

Providing residents with social contact, whether real or simulated, is thought to aid in the prevention of agitated behaviours.[51] For example, Cohen-Mansfield and Werner found that one-to-one social interaction was effective in managing verbally disruptive behaviours.[52] *Simulated Presence Therapy* (SPT) may be a useful form of simulating social contact in the absence of other opportunities. In this therapy, audio-visual recordings or personal message cards prepared by family members are provided to older adults with dementia.[53] A Cochrane review noted very low quality evidence that SPT reduced physical and verbal agitation.[54] However, there are again likely to be few risks associated with including this as an intervention option.

Reminiscence Therapy

Reminiscence Therapy (RT) involves discussing memories and past experiences, sometimes using tangible prompts such as photographs or historical materials.[55] A recent Cochrane review concluded that the effects of RT were inconsistent, differing considerably across settings and modalities.[56] While RT is typically a formalised therapy, there are likely to be few risks associated with an adapted form of RT for use when aggression is imminent.

CONSIDER MEDICATION

It is frequently recommended that nonpharmacological approaches are implemented prior to pharmacological approaches when managing aggression in aged care facilities.2,43 While anti-psychotic medications have been shown to have modest efficacy in reducing aggressive behaviour, the risks of adverse events (such as stroke, upper respiratory infections, extrapyramidal symptoms, and mortality) may outweigh the benefits, particularly

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when used regularly.[57] Pharmacological approaches to managing aggression can also result in poorer quality of life for residents,[13] and polypharmacy may itself contribute to aggression.[43] Should aggressive behaviour persist, recur, be severe enough to cause significant suffering and distress to the resident or other residents, or cause significant interference with the delivery of care, then some authors have proposed that medications may be considered.[3,4,39]

ASSESSMENT AND PLANNING

The protocol proposed here sets out a series of interventions for staff to consider when a risk of imminent aggression has been identified. It is possible to individualise staff responses, such as by identifying certain triggers that are particularly relevant to a resident, or by prioritising interventions that have previously de-escalated a resident. Tailoring the protocol to the individual resident through an assessment and planning process may increase its effectiveness, particularly considering the lack of existing empirical evidence for any one specific intervention. This approach is consistent with the growing body of evidence that person-centred approaches – those that recognise the individuality of the client in relation to the attitudes and care practices that surround them – improve staff behaviour,[58] increase quality of life,[59] and, importantly, help to minimise aggressive behaviours in aged care facilities.[60]

DISCUSSION

Older adults often have complicated and compromised mental and physical health. Some people in care will have impaired cognitive functioning. Their psychosocial functioning may be compromised, and their living situation may feel unfamiliar and complicated. It is no doubt difficult for staff to balance the myriad risk factors for aggressive behaviour whilst trying to provide optimal care in the least restrictive manner. This paper represents the first step in an effort to synthesise the existing literature into a practical protocol that can be applied by staff in aged care facilities. It is preliminary in nature and is intended to be further developed through theoretical critique, expert opinion, consumer feedback, and empirical evaluation. Fundamentally, the model is based on the premise that risk of imminent aggression can be measured, that risk is variable, and that interventions should be provided based upon the level of risk, with more intrusive interventions reserved for those occasions when risk is elevated and the likelihood of harm is serious. Research in the mental health field has shown that systematic risk assessment using brief valid instruments, when linked with an aggression prevention protocol, can lessen the likelihood of aggressive behaviour and reduce reliance on restrictive interventions.[10,61]

More broadly, further research targeting the following areas would ultimately benefit the ability of staff to intervene in a preventative manner when an imminent risk of aggression has been identified. First, developing and validating a daily monitoring tool that would allow staff to identify when aggression is imminent and therefore when to utilise preventative interventions. We note two instruments have been developed for inpatient mental health services, the BVC and the DASA. These measures are similar, both have good predictive validity and both have been endorsed for use in mental health services.[22] In an earlier study we critiqued the BVC and DASA and made suggestions for how these measures might be modified to incorporate risk factors relevant to aggression in older adults in residential care settings.[19] Second, continuing to build a methodologically sound body of evidence to support the use of specific primary and secondary preventative interventions. Third, understanding whether the causes and processes underlying aggressive behaviour by older adults with dementia differ from those without dementia and, therefore, whether different interventions are required. Fourth, determining whether preventative interventions are equally effective for different groups within this population (e.g. according to gender, level of functional impairment, or level of cognitive impairment).

CONCLUSION

A perception amongst care staff that aggression is inevitable, the absence of validated tools to assess risk for imminent aggression, and limitations in the extant evidence base, can render the prevention of aggression within aged care facilities a daunting task. In the absence of clear guidelines there is a risk that aged care staff will rely on restrictive interventions and these can have adverse short- and long-term consequences. The development of an aggression prevention protocol for use within aged care facilities is a complex task, hindered by a lack of consistent empirical evidence combined with a relatively under-developed understanding of the causes and processes that underlie aggressive behaviour in older adults. However, within the mental health field structured risk assessment instruments, used systematically and when linked to an aggression prevention protocol have been shown to reduce aggression and limit reliance on restrictive practices. The methods and principles that provided the foundation for these initiatives are offered here for consideration by staff working with older adults in residential care settings.

Despite the inherent difficulties, developing and implementing a structured approach to identifying and responding to the risk of imminent aggression could assist staff to engage consistently and effectively when aggression is imminent, increase staff confidence in complex situations, improve training, allow scant resources to be prioritised effectively, promote a workplace culture that does not dismiss aggression as inevitable, and ultimately provide a safe workplace for staff and a high level of care and protection to other residents.

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'Lifting the invisibility cloak' on the pivotal role of nurses in hepatitis C (HCV) testing, diagnosis and management – findings from an integrated primary healthcare service for marginalised people in inner Sydney, Australia

AUTHORS

ROSIE GILLIVER MN[1]

EDMUND SILINS B.Nursing, MPH, PhD[1,2]

PHILLIP READ MBBS, FAChSHM, MPH, PhD[1,3]

1. Kirketon Road Centre, Kings Cross, Sydney, New South Wales Australia
2. National Drug and Alcohol Research Centre (NDARC), UNSW Australia, Sydney, New South Wales, Australia
3. Kirby Institute, UNSW Australia, Sydney, New South Wales, Australia

CORRESPONDING AUTHOR

EDMUND SILINS, Kirketon Road Centre, Victoria Street, Darlinghurst NSW 2010 and National Drug and Alcohol Research Centre (NDARC), UNSW Australia, Sydney NSW 2000. Email: Edmund.Silins@health.nsw.gov.au

ABSTRACT

Objective: We sought to quantify the number of episodes of care made by doctors and nurses to six hepatitis C care milestones at an integrated primary healthcare service for marginalised people in inner Sydney, Australia.

Background: While nurses are at the coalface of hepatitis C care, they are not adequately represented in workforce data and therefore are less visible.

Methods: We conducted a retrospective audit of clinical database records between 2016 (when direct-acting antiviral therapy was introduced in Australia) and 2019 for six hepatitis C care milestones.

Results: Results revealed nurses' essential and increasingly substantial contribution to a broad range of hepatitis C care milestones (hepatitis C polymerase chain reaction testing, hepatitis C antibody testing, hepatitis C treatment assessment, Fibroscan, and sustained virologic response confirmation).

Conclusion: Findings demonstrate the utility of nurses in accessing marginalised populations and shine a light on the growing value and substantial contribution of nurses to clinical care in the management and treatment of hepatitis C.

Implications for research, policy, and practice: The findings presented here highlight the increasing role and broader scope of practice that nurses play in hepatitis C care. Nursing leadership and governance is critical to improving the visibility of nurses through comprehensive workforce data collection to strengthen the nursing workforce and justify role expansion.

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What is already known about the topic?

- Nurses have an essential role in the testing, diagnosis and management of people with hepatitis C (HCV).
- Although nurses hold this essential role, the extent of their work is not adequately understood given the poor representation of nurses in workforce data.
- There is a need for evidence that highlights the role of the nurse in HCV care, to support decision making and justify role expansion.

What this paper adds

- These findings shine a light on the growing value and substantial contribution of nurses to clinical care in the management and treatment of HCV.
- The findings also demonstrate the utility of nurses in supporting the healthcare of marginalised populations.
- Evidence of the increased role that nurses play in HCV care provides support for ongoing workforce development and extension of the role of the nurse in HCV testing, diagnosis, treatment and management.

Keywords: Capacity building, Hepatitis C, nurses, public health

BACKGROUND

Nurses have an essential role in the testing, diagnosis and management of people with hepatitis C (HCV).[1,2] They are at the coalface of HCV care,[3] yet nurses are not adequately represented in workforce data,[4] and therefore are less visible. For example, a recent systematic review showed that published datasets generally consider HCV outcomes by prescriber, usually a specialist or a primary care physician,[5] or group nurse practitioners together with other prescribers which excludes the contribution from the large workforce of non-prescribing nurses.[5-7] Furthermore, studies have focused on HCV treatment outcomes which overlooks the contribution nurses make to other parts of the HCV care cascade such as HCV testing, assessment, linkage to care and ongoing management.[5]

The Kirketon Road Centre (KRC) is a targeted primary healthcare facility in inner Sydney, Australia, focused on the prevention, treatment and care of viral hepatitis, HIV and sexually transmissible infections among marginalised populations. About 4,000 clients engage with KRC each year (including Aboriginal and/or Torres Strait Islander people (20%), homeless people (15%), people who inject drugs (60%), sex workers (30%) and men who have sex with men (30%). Kirketon Road Centre is a highly integrated service where nurses work in a multidisciplinary team (including counsellors, doctors and health education officers (HEOs)) to address clients' often complex health and psychosocial needs.[8]

In 2016, when direct acting anti-viral (DAA) therapy became available in Australia, KRC expanded its HCV treatment service to prescribe and monitor DAA therapy and offer transient elastography (Fibroscan) assessment of liver health, in-house and in outreach clinics.[8] During this time, nurses working within the primary healthcare setting increased their scope of practice through an extended, autonomous role; assessing clients for HCV treatment, especially in outreach settings which included HCV testing and performing Fibroscans.

In response to calls to 'lift the invisibility cloak' concealing nurses' activity and properly recognise the work of nurses in HCV care,[4] we sought to quantify the number of episodes of care made by doctors and nurses to six hepatitis C care milestones at KRC. Quantifying the contribution of nurses across the continuum of HCV care more adequately recognises the work they do by increasing visibility and is important to developing an effective HCV response.

METHODS

This was a retrospective audit of episodes of care from the clinical database between 2016 and 2019. The number of episodes of care included in the analysis varied by HCV care milestone and year.

When a client presents at KRC for HCV testing and assessment for treatment, or a clinician (a nurse or doctor) identifies risk factors that indicate these are recommended, the episode of care is recorded in the clinical database. We examined the following categories of episodes of care:

1. *HCV antibody testing*: where venipuncture for HCV serology performed;
2. *HCV RNA testing*: where venipuncture for HCV polymerase chain reaction (PCR) performed;
3. *Assessment for HCV treatment*: where client was assessed for HCV treatment and provided with education about treatment;
4. *HCV treatment commencement*: where DAA script or medication was provided;
5. *Fibroscan*: where transient elastography was performed; and
6. *SVR12 confirmation*: where venipuncture was performed for sustained viral response at 12 weeks post-treatment.

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We determined from database records whether each episode of care was provided by a nurse or a doctor. The number and proportion of episodes of care attributable to nurses and to doctors was reported for each of the above categories: (1) for the four year period in total; and, (2) for each calendar year. Data were analysed by year using the Extended Mantel Haenszel Chi-Square test for linear trend in proportions (Chi-Square statistic, p value reported) in OpenEpi.[9]

Approval for the audit of routinely collected clinical activity was provided by the data custodian (Dr Phillip Read, Director, Kirketon Road Centre). Client records were not accessed at any point and further ethical review was not required.

RESULTS

Between 2016 and 2019, across the six HCV care milestones examined, there were a total of 5,561 episodes of care provided by a nurse/doctor (Table 1). This included 2,315 HCV antibody testing episodes (467 HCV antibody testing episodes in 2016; 425 in 2017; 375 in 2018; and, 1,048 in 2019; Table 1) and 307 HCV treatment commencement episodes (82 commencement episodes in 2016; 95 in 2017; 73 in 2018; and, 57 in 2019; Table 1).

Across the four year period, nurses provided the majority of episodes of care for each HCV care milestone (HCV antibody testing, 70%; HCV PCR testing, 56%; treatment assessment, 71%; treatment commencement, 66%; Fibroscan, 78%; SVR12 confirmation, 63%; Table 1).

Analysis by year showed that nurses' contribution to all milestones was substantial and had generally increased year to year since 2016 (Table 1, Figure 1).

There were large and statistically significant increases in nurses' contribution between 2016 and 2019 for five of the six HCV care milestones: HCV PCR testing (48% (2016) to 61% (2019); chi-square 8.33, P=0.004), HCV antibody testing (61% (2016) to 77% (2019); chi-square 40.8, P<0.001), HCV treatment assessment (61% (2016) to 83% (2019); chi-square 14.25, P<0.001), Fibroscan (62% (2016) to 78% (2019); chi-square 60.96, P<0.001), and SVR-12 confirmation (54% (2016) to 85% (2019); chi-square 6.41, P=0.011; Table 1).

Hepatitis C treatment commencement was the exception where nurses' contribution remained substantial but the increase over the period was not statistically significant (66% (2016) to 72% (2019); P=0.445, Figure 1).

TABLE 1: CONTRIBUTION (% AND N/N) OF NURSES AND DOCTORS TO HCV CARE MILESTONES BETWEEN 2016-2019

Milestone	Health professional	2016 % (n/N)	2017 % (n/N)	2018 % (n/N)	2019 % (n/N)	Total % (n/N)	Chi-Square[a] p value[c]
HCV PCR test	Nurse	48.4 (186/384)	59.2 (222/375)	57.4 175/305)	60.9 (134/220)	55.8 (717/1284)	8.33
	Doctor	51.6 (198/384)	40.8 (153/375)	42.6 (130/305)	39.1 (86/220)	44.2 (567/1284)	<0.01[b]
HCV Ab test	Nurse	60.8 (284/467)	66.1 (281/425)	62.9 (236/375)	76.5 (802/1048)	69.2 (1603/2315)	40.8
	Doctor	39.2 (183/467)	33.9 (144/425)	37.1 (139/375)	23.5 (256/1048)	30.8 (712/2315)	<0.001 [b]
Assessment for HCV treatment	Nurse	60.9 (95/156)	72.3 (99/137)	76.0 (76/100)	83.3 (70/84)	71.3 (340/477)	14.25
	Doctor	39.1 (61/156)	27.7 (38/137)	24.0 (24/100)	16.7 (14/84)	28.7 (137/477)	<0.001 [b]
Commenced HCV treatment	Nurse	65.9 (54/82)	63.2 (60/95)	67.1 (49/73)	71.9 (41/57)	66.4 (204/307)	0.58
	Doctor	34.1 (28/82)	36.8 (35/95)	32.9 (24/73)	28.1 (16/57)	33.6 (103/307)	0.45
Fibroscan	Nurse	61.7 (200/324)	82.9 (267/322)	87.2 (177/203)	89.7 (148/165)	78.1 (792/1014)	60.96
	Doctor	38.3 (124/324)	17.1 (55/322)	12.8 (26/203)	10.3 (17/165)	21.9 (222/1014)	<0.001 [b]
SVR-12	Nurse	54.2 (26/48)	57.7 (30/52)	70.5 (31/44)	85.0 (17/20)	63.4 (104/164)	6.41
	Doctor	45.8 (22/48)	42.3 (22/52)	29.5 (13/44)	15.0 (3/20)	36.6 (60/164)	<0.05 [b]

HCV=Hepatitis C; PCR= Polymerase chain reaction; Ab=Antibody; SVR-12=Sustained viral response at 12 weeks post-treatment.

a Mantel Haenszel Chi-Square test
b Statistically significant
c Extended Mantel Haenszel Chi Square test for linear trend with a p-value for one degree of freedom

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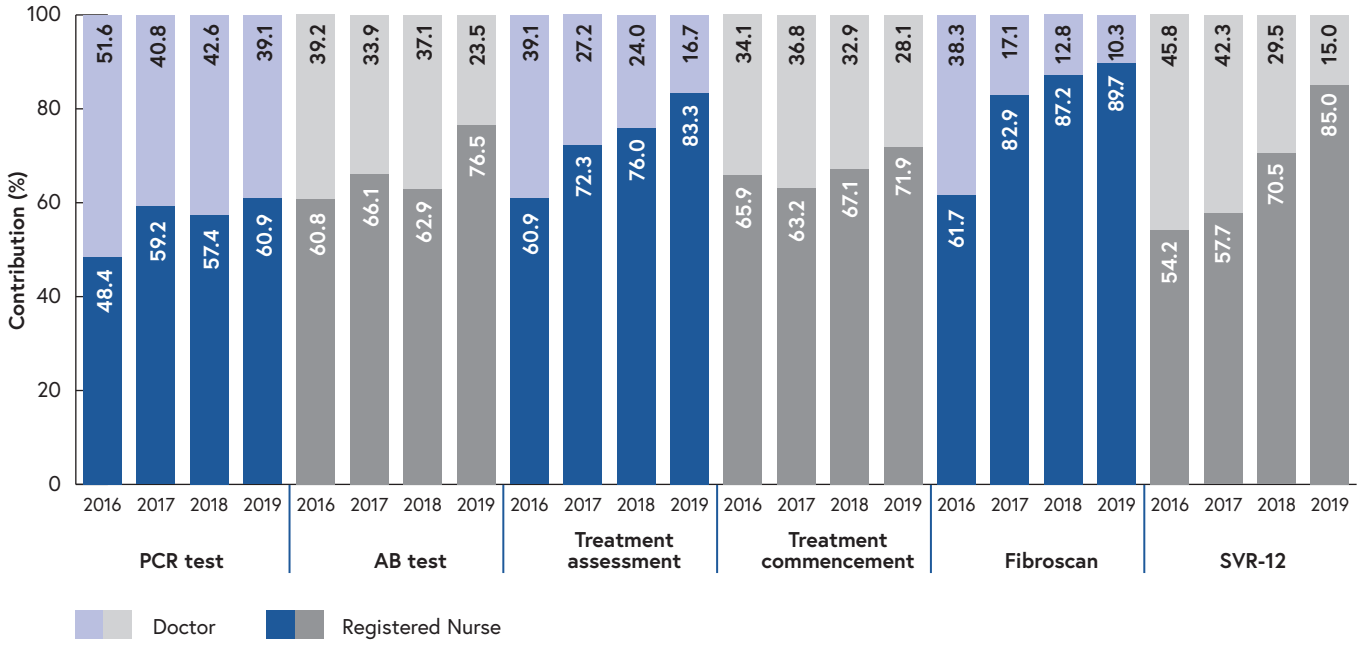

FIGURE 1: CONTRIBUTION OF NURSES AND DOCTORS TO HCV CARE MILESTONES 2016-2019

*Statistically significant increase in nurses' contribution between 2016-2019

HCV=Hepatitis C; PCR= Polymerase chain reaction; Ab=Antibody; SVR-12=Sustained viral response at 12 weeks post-treatment

DISCUSSION

To our knowledge, this is the first study which has quantified the contribution of nurses across the continuum of HCV care from testing to treatment completion. Examining the contribution of nurses to six key milestones revealed their pivotal role in the current HCV response at this inner Sydney integrated primary healthcare service.

Our findings reflect the changing nature of the HCV nursing workforce since the advent of DAA therapy as we move away from interferon treatment education and side effect management.[3,6,10] Hepatitis C treatment is now more effective, shorter and has far fewer side effects.[6] This advance has allowed HCV testing, treatment and management to be integrated into non-specialist settings such as primary care and harm reduction.[5] The shift away from the provision of HCV care in tertiary settings by specialists has enabled more nurses to be engaged across the HCV care cascade and improved access to testing, linkage to care, and treatment.[5] Additionally, task-shifting of care to nurses and non-specialists was associated with similarly high cure rates (SVR12) to care delivered by specialists.[5]

To achieve HCV elimination, we need to scale up nursing activity in primary care. Extending the role of the nurse in the community setting and advocating for dedicated HCV nursing positions are important steps. Developing viable models of care which do not rely on the specialist system are essential as the specialist workforce alone cannot meet treatment needs.[11] In our service, ongoing workforce development within our nursing team extended the role of the nurse with, generally, clinical nurse consultants (CNC) providing the more advanced care. This enabled an increased contribution across the HCV care cascade and allowed for an expansion of our outreach work. For example, KRC's 'Hep@Home' program involves nurses working with medical staff and local peers who inject drugs to identify, assess and treat clients in the community who are more comfortable being seen in an outreach setting than attending traditional primary or tertiary healthcare settings.[12] To inform these strategies, in line with calls globally to strengthen capacity for health workforce data collection,[13] we need to get better at measuring the impact of nurses across the HCV sector. This will require participation across organisations, greater collaboration between nurses and researchers, and a commitment to use data to guide policy and program development.[4]

It is time to move away from a focus on the prescriber and better measure activity across the continuum of HCV care. Nurses clearly make a substantial and increasing contribution to clinical care in the management and treatment of HCV. The next step is to investigate whether these workforce changes have increased HCV testing and diagnosis, and improved linkage to care and treatment completion. While activity-based outcomes can be influential they do not encompass all that nurses do. A large part of the nurses' role in delivering person-centred care is building relationships and trust with people – particularly with those who are marginalised or have been discriminated against in the health system.[4] This is an important dimension of nurses' work which is harder to measure and is an important area for future research.

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LIMITATIONS

Results may have been influenced by external factors. For example, treatment commencement episodes in 2016 and 2017 may have been higher than in subsequent years because people waiting for DAAs were already worked up for treatment; and, relatively high HCV antibody testing episodes in 2019 may have been attributable to an 'opt out' testing study underway at the time which meant more clients than usual received a HCV antibody test in that year. While external factors may have influenced the number of episodes of care, this is unlikely to have influenced findings because the proportion of episodes of care attributable to nurses and to doctors would not have changed. Changes in staffing profile could potentially influence results, however the number of doctors and nurses in the service did not change over time. Our results reflect KRC's model of care, however findings would likely be generalisable to other multi-disciplinary primary care services which target marginalised populations.

CONCLUSION

These findings shine a light on the growing value and substantial contribution of nurses to clinical care in the management and treatment of HCV. The goal of eliminating viral hepatitis globally by 2030 cannot be achieved without maximising the contribution of nurses.[13,14] Nurses account for about 60% of the health workforce,[13] spend more time with patients than physicians and are less expensive.[15] Extending nurses' scope of practice is essential for workforce development and is particularly important in primary care which underpins the HCV care cascade. If required, reorientation of health services should be considered to achieve this aim. Nursing leadership and governance is critical to strengthening the nursing workforce and to driving efforts to strengthen workforce data which supports decision making and justifies role expansion.

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