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IN THIS ISSUE

EDITORIAL

COVID-19 and residential aged care in Australia. Ibrahim J.
PP. 1–3 • DOI 2020.373.226

RESEARCH ARTICLES

A national survey of nurses who care for people with intellectual and developmental disability. Wilson NJ, Collison J, Feighan SJ, Howie V, Whitehead L, Wiese M, O'Reilly K, Jaques H, Lewis P.
PP. 4–12 • DOI 2020.373.120

Recognition for registered nurses supporting students on clinical placement: a grounded theory study. Anderson C, Moxham L, Broadbent M.
PP. 13–19 • DOI 2020.373.98

The effects of a hospital-based perinatal breastfeeding program on exclusive breastfeeding in Taiwan: a quasi-experimental study. Yeh CH, Yang YP, Lee BO.
PP. 20–28 • DOI 2020.373.81

REVIEWS & DISCUSSION PAPERS

Prehospital interventions to prevent hypothermia in trauma patients: a scoping review. Mota M, Cunha M, Santos M, Santos E, Melo F, Abrantes T, Santa A.
PP. 29–36 • DOI 2020.373.88

LETTER TO THE EDITORS

The role of telehealth in supporting mothers and children during the COVID-19 pandemic. Smith W, Taki S, Wen LM.
PP. 37–38 • DOI 2020.373.168

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EDITORIAL

COVID-19 and residential aged care in Australia

The COVID-19 pandemic continues to have far reaching impacts on individuals, professionals, human services such as aged care and, society more broadly. In Australia we are proud of our success in limiting the direct impacts the virus has on mortality and morbidity. When reflecting on this pandemic we must recall that 'success' has many parents - everyone clamours to explain that their actions created a positive outcome. In contrast 'failure' is an orphan—no-one steps forward to acknowledge their responsibility for an adverse outcome. The reality is Australia's success with the emergency response and management of COVID-19 pandemic are in a large part due to inherent underlying geographic and population factors. We live on an island continent with an extraordinary ability to control our borders. We have an extremely low population density and our population is widely dispersed. Also instrumental was our coordinated and prompt public health responses and community cooperation.

As of June 24 2020, nationally the total number of COVID-19 infections was 7,521 with 103 deaths comprising 29 aged care residents.[1] Internationally, Australia rates extraordinarily well on these metrics.[2] What we must guard against are complacency and overconfidence.

This is evident in efforts to thank aged care staff for working extremely hard. We conflate our words of gratitude with unsubstantiated statements about how well the whole aged care sector is operating. The absence of catastrophic impacts of the COVID-19 pandemic in aged care homes in Australia that occurred around the world are not evident of a highly functioning system. The virus has not washed away the systemic failures highlighted in the interim report by the Royal Commission into Aged Care Quality and Safety.[3]

While the COVID-19 pandemic exacerbates and highlights the existing primary failures[4] in the provision of residential aged care in Australia. We are distracted by the profound shift in our usual way of life, the fear and angst with confronting a once in a century natural disaster.

We require a prudent approach if we are to guard against the high COVID-19 case fatality rate of residents in aged care homes. This article is intended as a sober reflection at the structural domains of the aged care sector and the COVID-19 pandemic. The domains are governance, workforce, models of care, evaluation including the use of data and finally, resources and infrastructure.

GOVERNANCE

Governance or the lack thereof is a recurring issue in aged care. Good governance comprises following the rule of law, transparency and accountability for service provision. The COVID-19 pandemic highlight major gaps in this domain for the sector. There was a slow recognition of the extremely serious risk COVID-19 posed for older people and the multiple authorities involved, creating confusion and lack of consistency to optimally manage the pandemic.

The initial Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19) did not reference the Royal Commission nor recognise aged care as a system that is failing in 'usual circumstances'.[5] At a federal level there are the regulators in Aged Care Quality and Safety Commission and two separate portfolios of government in health and aged care are involved. At a State level the Department of Health and Public Health Units as well as the providers for general practice and the acute hospitals.

This hampered development of a coherent policy and appropriate practice for a humane lockdown at each aged care facility. At a local level there was confusion for aged care providers and staff when an outbreak of COVID-19 occurred such as at Newmarch House.[6]

The lack of transparency in aged care was especially evident with the facility lockdown. Inability of families to visit their loved one was compounded by a pre-existing absence of a minimum standard of information about care delivery to residents. This type of public reporting that is user-friendly and easily accessible to consumers would have eased enormous worry for families and the community in general.

WORKFORCE

Much was made of the need to retain and upskill staff to manage the COVID-19 pandemic. Specifically, the need for residents to shelter in place and for facilities to be able to provide the additional clinical care. Recognition that the sector was understaffed and was not equipped to step-up service to that of an acute hospital was slow in being recognised and remains an issue. The federal government surge workforce initiative addressed aspects of these issues temporarily.

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What remains is a failure to address the long-term systemic issues highlighted again in a recent international comparison of aged care workforce. Eagar and colleagues report widespread and substantial gaps in the workforce which impacts on the quality of care for residents.[7]

The deskilling of the workforce by reducing the number of nurses employed in aged care homes continues to occur. The pandemic highlighted an unfair and unreasonable expectation that personal care attendants could and should 'step-up'. Asking personal care attendants to deliver highly technically care in an urgent and complex situation is bewildering given the entry requirements into this role is a very basic level of skill training.

This issue should have received a more robust public, aged and health care sector debate. As it goes to the essence of the standard of care for older people infected with COVID-19. The absence of a genuine resident voice is at the heart of this silence. A silence not overcome by boisterous peak bodies that represent providers, professionals or community dwelling older people.

MODELS OF CARE

The emergency response to the COVID-19 pandemic assumed that the existing model of care could readily adapt into an acute health model. The duality of purpose in residential aged care has not ever been satisfactorily resolved. Government, providers, health professionals, acute hospitals pivot around their preferred model of care to suit the immediacy of their argument. The workforce composition is predicated on a model of care that assumes aged care is a residence, a home to live in for well older people who occasionally need assistance with personal care. The reality is far different. A model of care must recognise that residents are frail older persons with cognitive impairment and multiple other comorbidities who are vulnerable to dramatic or life-threatening consequences from minor insults or injuries.

The older person in an aged care home has a diverse set of clinical, health maintenance and quality of life needs. The expertise for all aspects is unusual to find in one place.[8]

EVALUATION

The volume of data, statistics and tally counts during the first wave of COVID-19 were overwhelming. Sadly, there was little useful data to guide aged care. This was evident internationally in the United Kingdom and France with the incomprehensible failures to recognise or include the deaths of aged care residents in a nation's official case fatality count. In Australia, information about the number of aged care facilities with an outbreak, how these were managed and, the lessons to be learned were and remain difficult to access in the public domain. Detailed, relevant, standardised reports about the quality of care being delivered to residents were largely absent. Mostly because prior to the COVID-19 pandemic this information is either not collected or if gathered not released. Information indicative of whether the aged care sector was coping requires examining measures of system distress such as the use of restrictive practice, resident mental health and wellbeing and those exhibiting severe responsive behaviours.

The existing data indicated pre-existing deficits in infection control that could have informed specific strategies to improve our national approach in aged care.[9,10]

RESOURCES AND INFRASTRUCTURE

The limitations in our resources and infrastructure have been largely overlooked. Patched over with temporising measures with surge workforce or staff stepping in to fill the void because of the urgency of the situation.

The existing building designs and stock for aged care homes create conditions for rapid spread of infection. Small bedrooms, shared bathrooms, communal areas and a 'home-like' environment that precludes the space and equipment to maintain meticulous infection control.

CONCLUSION

The aged care sector requires transformation. The havoc wreaked by the COVID-19 pandemic globally and nationally may create an environment where the required changes are lost to other priorities. We should remember that it was good fortune that allowed Australia's aged care sector to survive so well. That the second and subsequent waves require good management. That requires understanding the existing gaps and bridging these in the short term for the pandemic. To achieve long term changes requires vigilance and advocacy.

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RESEARCH ARTICLES

A national survey of nurses who care for people with intellectual and developmental disability

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ABSTRACT

Objective: To describe the roles that Australian nurses play, the breadth of skills that they deploy, and the range of contexts in which they practice.

Study design and methods: This cross-sectional study used a descriptive survey where data were collected online using Qualtrics©. Survey respondents were nurses whose primary role was caring for people with intellectual and developmental disability. In addition to demographic data, the main outcome measures were: nursing roles, practice and context.

Results: Complete responses were collected from 101 nurses; 78 females and 22 males completed the survey, the majority of whom (n=70) were from New South Wales. The major focus of care was direct assessment and care, followed by supervision of support workers, education, and advocacy for people with intellectual and developmental disability. Physical healthcare was consistent across body systems, as it was for all adaptive behaviour domains. Support for mental illness was more likely to be for depression and anxiety. Nurses liaise with a multitude of health and social agencies as part of their nursing practice.

Discussion: This is the first study to capture the roles, practice and contexts of these Australian nurses. Nurses caring for people with IDD play a variety of roles and engage in a vast array of practice related to the physical and social needs of people with intellectual and developmental disability across the whole of the lifespan and in multiple, disparate contexts.

Conclusion: It is important for the ongoing care of people with intellectual and developmental disability that the value added by this nursing workforce not be overlooked as disability and health policies evolve.

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Implications for research, policy and practice:
This cross sectional study lays the groundwork for further research about these Australian nurses, in particular more focussed research about the economic benefits of disability services employing nurses, description and effect of nursing interventions specific to people with intellectual and developmental disability, as well as theoretical work to conceptualise new, National Disability Insurance Scheme-ready, models of nursing care for people with intellectual and developmental disability.

What is already known about the topic?

- In the Australian context, little is known about the contemporary roles and practice of nurses who care for people with intellectual and developmental disability.

What this paper adds:

- This paper offers a detailed and modern insight into the roles and nursing practice of this marginalised group of nurses. Although all nurses offer physical nursing care, unique to these nurses is the breadth and depth of social, behavioural, emotional and adaptive behaviour support across the lifespan.

Keywords: intellectual disability; nursing; nurse; Australia; practice standards, care contexts

INTRODUCTION

The literature about Australian nurses who specialise in caring for people with intellectual and developmental disability (IDD) is limited in quantity and narrow in focus.[1] This gap is historical, dating back to the commencement of the deinstitutionalisation era of the 1980s when the role of nurses in the day-to-day lives of people with IDD was gradually phased out.[2] That is, these nurses were marginalised while more socially-inclusive models were developed that did not mandate the need for nursing skills.[2] Decades later, these nursing skills are still required as many remain employed in the IDD sector.[3] A smaller number of nurses with expertise in the assessment of health and support needs of people with IDD also work in either primary or tertiary healthcare settings.[4]

The disparate healthcare needs and outcomes of many people with IDD requires varying degrees and frequency of care from nurses with specialised skills across multiple settings.[5] However, we know very little about these nurses' roles, what constitutes their nursing practice and the type of contexts within which they work. In light of the new and rapidly evolving National Disability Insurance Scheme (NDIS), that promotes individualised support needs in the community, a deeper insight about the role of nurses in the care of those with IDD is vital. Understanding this role will provide a planning platform to embed nursing care within the NDIS framework, as a way of addressing inequities in health outcomes currently experienced by people with IDD.

WHY ARE IDD NURSES NEEDED TO SUPPORT THE HEALTH OF PEOPLE WITH IDD?

People with IDD represent approximately 3% of the Australian population, a prevalence shown to be fairly consistent over time,[6] and generally experience poorer health, inequitable access to healthcare services and increased mortality relative to the general population.[7] Further, their health needs are perhaps best understood as complex, chronic and lifelong. To illustrate, people with IDD are: at greater risk of exhibiting challenging behaviour and of developing mental health problems; experience increased rates of polypharmacy administration; and have multiple concurrent health conditions.[8] Health needs and healthcare access represent a significant problem across Australia for this population, exacerbated by multiple individual and systemic barriers.[9]

NURSES' ROLE WITHIN THE NDIS

Under the NDIS, people with IDD can access services across a number of disciplines, through a variety of service providers, and delivered by workers with a diverse range of skills.[10] Currently, the nurse's role in the NDIS appears vague and limited in nature. According to the National Disability Insurance Agency (NDIA), nurses may be required for the "provision of care, training and supervision of a delegated disability support worker to respond to the complex care needs of a participant where that care is not the usual responsibility of the health system".[11(p. 67)] That is, nursing care can only be claimed as a capacity-building support. The intended rationale for this limited scope for nursing care is to maximise client independence; wherein the nurse teaches the client or support worker healthcare skills and all other nursing services are provided by state and territory health departments.[11] It is likely that many people with IDD and chronic and ongoing healthcare needs, cannot be met by the NDIS nurse training or consultation model.[3] Equally, these healthcare needs are not best served by expensive and preventable hospital admissions.[12]

WHAT DO THESE IDD NURSES DO?

In the Australian context, little is known about where these nurses work, the types of roles for which they are employed, and the range of skills used in their practice. Insight is offered from the UK and Ireland where the role of specialist *learning disability nurse* is recognised.[13] Australia has a general nursing register for newly qualified nurses; if a nurse does become employed within an IDD service, they may become experts in their chosen field, but remain professionally invisible.[14] By contrast, many UK and Irish nurses are employed within acute hospital contexts as liaison nurses,[15] forensic settings,[16] as well as within community nursing teams.[17] Specialisation within the nurses' role has also emerged in the areas of end-of-life care, epilepsy management, challenging behaviour and early onset dementia. The most common activities for the community IDD nurse in the UK are health promotion, health surveillance, facilitating access to healthcare, health prevention, health education, and healthcare delivery.[17]

Australian nurses are primarily employed within IDD services with a small number employed within state-based specialist health units. The only current data available for this workforce does not report its total size - without a dedicated IDD health workforce category under the annual Australian Health Practitioner Regulation Agency (AHPRA) registration process these data are missing - but suggests that they are mainly older (mean age = 52.31 years) and female, but male nurses were significantly older than female nurses.[18] There is currently little appreciation for the complex, multi-faceted aspects of the nurse's role which previous research has shown extends to behaviour support, physical and mental health, sexuality education, intensive case management and complex inter-sectorial collaboration.[4] Although Irish research has emphasised the physical and technical roles,[19] the equivalent role in Australia also suggests psycho-social and relational emphases. Wilson et al. have proposed a preliminary model titled *nurse-led, relationship-centred care* reflecting the vital relational component of the nurse's role and represents a starting point in building a body of evidence.[4] Missing from the evidence, is a comprehensive understanding of the roles, everyday practice, and context of IDD nursing; this paper seeks to fill this gap in our knowledge.

AIMS

To examine the role of nurses who care for people with IDD with respect to:

1) the range of primary roles fulfilled across this nursing workforce,
2) the context of the work setting; and
3) the breadth of their nursing practice.

METHOD

DESIGN

This study used an observational research design using descriptive survey tool with a cross-sectional, national sample.

ETHICAL CONSIDERATIONS

This study was approved by the Western Sydney University Human Research Ethics Committee (Approval ID: H12836).

SURVEY DEVELOPMENT

The survey was developed and piloted in 2018; the first version comprised five components:

1) Personal care (covering seven broad categories, each with between 3–5 sub-items listing type of care provided: physical healthcare, adaptive behaviour, managing problem behaviour, supporting mental illness, supporting spirituality, identity and body image, nursing assessment and intervention)
2) People with IDD cared for (three items: age range, gender, and living situation)
3) Professional contributions (three items: supervision/development of support workers, development goals of the service, development within the field of IDD nursing)
4) Demographic data (12 items, including: age, gender, years' experience as a nurse, and highest qualifications)
5) Professional practice (Two items: nursing assessments and nursing interventions used).

The survey was assessed for content validity by experts, field-tested for clarity of language and appropriateness of items, and a test-retest reliability check reported an 83% agreement. A pilot study using a convenience sample yielded 18 completed surveys. Following this, minor edits were made to some language, sections were shortened, a new section was added to Part One about interagency collaborations (two items: health and social agencies), and a new Part Six about nursing research (one item: level of participation in research) was included. A copy of the final survey is available from the corresponding authors.

PARTICIPANTS

The inclusion criteria were any nurses registered with AHPRA whose primary role was working with people with IDD. In the absence of any national sample frame, we adopted a purposive sampling approach using the publicly available database of all NDIS-registered Australian disability service providers.[20] The databases were organised by state or territory, and by service category; there were 37 service categories in total with 70,646 registered service providers listed. A strategy was developed to delete wherever possible any non-nursing and non-IDD related providers, using the NDIA definitions of registration groups and providers.[21]

A consensus was reached about which registration groups were less likely to employ nurses. For instance, the group *Assistance with Travel/Transport Arrangements* was eliminated. Unrelated entries by non-nursing and non-IDD key terms such as *psych, speech pathology, dementia* and *spinal injury* were removed. As many NDIS providers offer a national service, all duplicate entries across state/territory databases were deleted. The building of a registered service provider list that met the needs of this study was an iterative approach; Figure 1 illustrates the steps undertaken and the service provider figures at each stage; the final list of registered service providers contacted was *N* = 4,741.

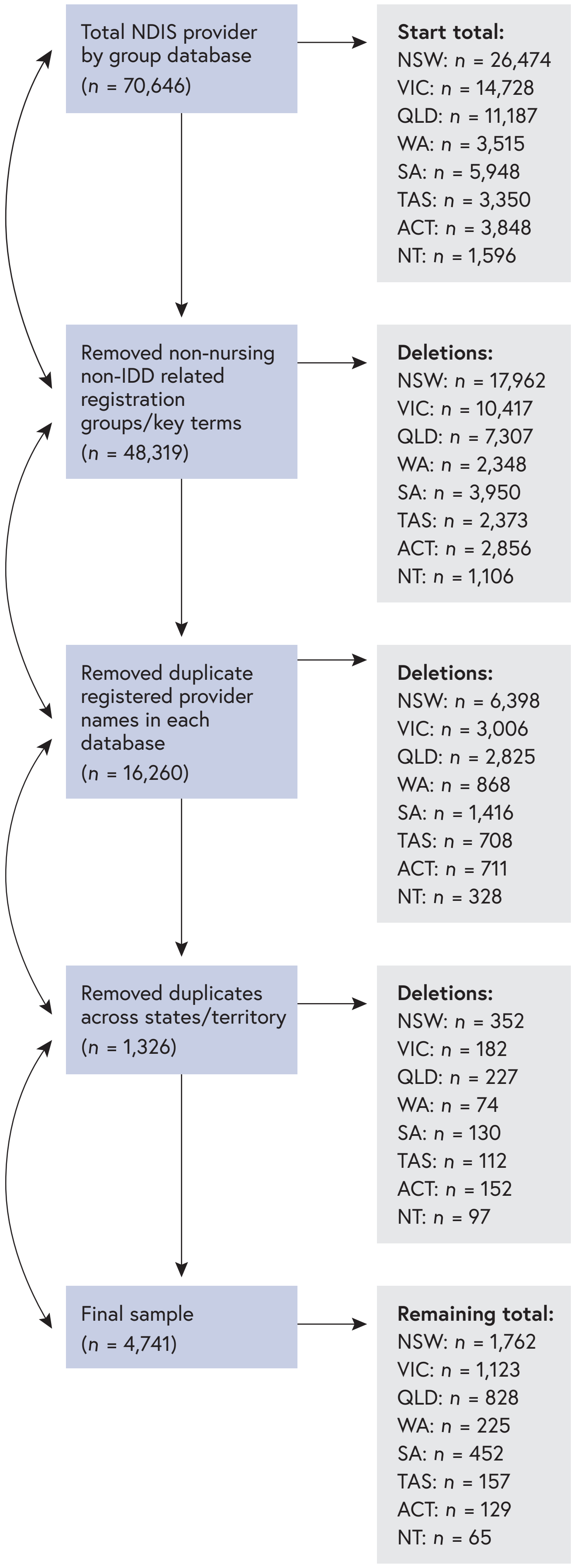

FIGURE 1: EXCLUSION STRATEGY

DATA COLLECTION

Survey data were collected using Qualtrics© between September 2018 and January 2019. The provider database was divided among 10 research team members. Where possible, the list allocated matched the researcher's geographic location. Each researcher was given a telephone script; first, the researcher clarified whether the service employed any nurses. If the answer was affirmative and the service agreed, a flyer containing a hyperlink to the online survey was emailed to an agreed contact person who either forward the link to all nurses employed within the service or directly to nurses if their email address was provided. Emails with the flyer were also sent to those services who were not contactable by phone, with an invitation to forward the link to any nurses employed within the service. The survey was also advertised on nursing and IDD-related social media sites.

DATA ANALYSIS

IBM SPSS Statistics (Version 22) was used to analyse descriptive and inferential statistics, with appropriate Bonferroni adjustments made when required.[22] Prior to analyses the dataset was screened for missing data, with no systematic missing data noted.[22]

FINDINGS

RESPONSE AND DEMOGRAPHICS

We received 162 responses, 59 of which were withheld due to incomplete data and two were removed as the respondents did not meet the inclusion criteria. This left a total sample of N=101 respondents comprising 78 females (77%), 22 males (22%), and one undisclosed (0.01%), with a mean age of 52.31 years (SD=10.05). Responses by state and territory were: NSW (*n* = 70), Victoria (*n* = 14), South Australia (*n* = 6), Queensland (*n* = 5), the ACT (*n* = 2), Tasmania (*n* = 2), Western Australia (*n* = 1) and missing (*n* = 1). All respondents were registered with AHPRA: 88 registered, 11 endorsed enrolled, and 2 enrolled nurses.

PRIMARY ROLES

Descriptive statistics and sample frequencies were requested to explore the primary role focus among nurses as follows: 1) *direct assessment and care of people with IDD*, 2) *supervision of support workers*, 3) *workforce management within a disability service*, 4) *education*, 5) *specialist consultation*, and 6) *systematic advocacy for people with an IDD*. Respondents were asked to rate the role foci from the lowest (ie. one out of six) to the highest focus (ie. six out of six) of their role. Participants could give more than one focal category a particular rating. As an overall average, respondents rated direct assessment and care of people with IDD as the major focus of their role (4.61 out of a possible six), followed by supervision of support workers (4.59), education (4.32) and advocacy for those with an IDD (4.08). Specialist consultation (3.97) and workforce management (3.93) were the lowest rated areas of focus. When converted to the highest focus only (ie. six out of six), direct assessment and care of people with IDD was 42/101, and the lowest focus was specialist consultation at 18/101. Thus, 42 nurses reported that direct assessment and care was the highest focus of their role, and only 18 thought that specialist consultation was the highest focus of their role. When converted to lowest focus only, workforce management within a disability service was the highest ($n = 9$) compared to education ($n = 1$) meaning only one nurse thought education was the least important focus of their role.

NURSING PRACTICE

Nursing practice across the domains of *1) Physical healthcare, 2) Supporting adaptive behaviours, 3) Managing maladaptive/challenging behaviours, 4) Managing mental illness, 5) Supporting spirituality, identity and body image,* and *6) Use of formal assessment tools and the design of nursing interventions* were explored.

Physical Healthcare. Physical healthcare was based on body systems similar to the widely-used Comprehensive Health Assessment Profile:[23] respiratory, neurological/sensory, gastrointestinal, musculoskeletal, integumentary, cardiovascular, endocrine, genitourinary and sexual health. Respondents ($N = 101$) reported they were most likely to provide support to meet needs related to the gastrointestinal system ($n = 82$) closely followed by support to meet needs related to neurological/sensory care ($n = 81$), whereas the provision of genitourinary care ($n = 58$) and sexual healthcare ($n = 37$) were much less frequent (see Table 1 for total sample responses). Gastrointestinal support and/or neurological/sensory care may therefore reflect an area of greater and more regular care need for people with IDD.

TABLE 1: SAMPLE RESPONSES (*N* = 597) FOR PHYSICAL HEALTHCARE CATEGORIES

Category	*n*	%
Sexual	37	6.20
Respiratory	74	12.40
Neurological	81	13.57
Gastrointestinal	82	13.74
Musculoskeletal	76	12.73
Integumentary	62	10.39
Cardiovascular	61	10.22
Endocrine	66	11.06
Genitourinary	58	9.72

To explore this in greater detail, nurses were asked to provide insight on specific examples of support within each category. For example, within the domain of musculoskeletal care, we surveyed whether hypotonic, hypertonic, or mobility support was more common. Across the nine aspects of physical healthcare we investigated, notable within-domain variation was only observed in two categories: neurological/sensory care and musculoskeletal support. With respect to neurological care, nurses appeared more likely to provide support for seizure management ($n = 74$), conduct an assessment ($n = 57$) or provide sensory support ($n = 52$), but were less likely to provide support for neurodegenerative disease ($n = 36$). With respect to musculoskeletal care, nurses were more likely to provide support for mobility support ($n = 66$) than either hypotonic support ($n = 34$) or interventions for hypertonia ($n = 38$). See Table 2 for a detailed overview of within-domain differences.

TABLE 2: SAMPLE RESPONSES (*N* = 1118) FOR PHYSICAL HEALTHCARE SUB-CATEGORIES

Category	*n*	%
Sexual	**48**	
Sexual health support	28	58.33
Sexual health management	20	41.67
Respiratory	**212**	
Respiratory Support	48	22.64
Airway management	43	20.28
Respiratory observations	61	28.77
Manage chronic illness	60	28.30
Gastrointestinal	**218**	
Nutritional support	71	32.57
Elimination management	73	33.49
Manage chronic illness	74	33.94
Integumentary	**207**	
Integumentary support	54	26.09
Integumentary management	52	25.12
Integumentary observations	53	25.60
Managing chronic illnesses	48	23.19
Cardiovascular	**140**	
Cardiovascular support	49	35.00
Cardiovascular management	46	32.86
Cardiovascular observations	45	32.14
Endocrine	**156**	
Endocrine support	44	28.20
Endocrine management	53	33.97
Endocrine observations	59	37.82
Genitourinary	**137**	
Genitourinary support	50	36.50
Genitourinary management	45	32.85
Genitourinary observations	42	30.66

Adaptive behaviour. This field contained five forced-choice categories (Yes/No) based on the Inventory for Client and Agency Planning (ICAP),[24] a widely-used adaptive behaviour assessment tool for people with IDD. Categories were support for motor skills, social skills, communication, personal living skills and community living skills. Communication and social skills were the most commonly endorsed items (*n* = 92 and 86 respectively), followed by personal living (*n* = 75), motor skills (*n* = 72), and community living (*n* = 69). Thus, nurses overwhelmingly offer support for people with IDD in this domain, with largely equivalent degrees across the range of adaptive behaviours.

Maladaptive/Challenging Behaviour. This domain included seven forced-choice behavioural items (Yes/No) based on the ICAP:[24] self-harming, harmful, destructive, disruptive, unusual or repetitive, socially offensive, withdrawal or inattentive, and uncooperative behaviours. Self-harm and harmful to others were the most frequently provided forms of behavioural support (*n* = 81 and 80 respectively). Management of destructive, disruptive, repetitive, and offensive behaviours was reported with a high degree of similarity (*n* = 70, 73, 74, 73 respectively), while withdrawn/inattentive behaviours were less frequent (*n* = 66). Hence, while nurses clearly offer widespread support for people with IDD in this domain, there may be some bias towards addressing self-harm and harm to others over other areas.

Mental health support. This item contained seven forced-choice items (Yes/No) that reflected the content of many mental health assessments: self-harm, anxiety, depression, eating disorder, psychosis and/or mania, suicidal ideation, and offering no mental health support. Nurses were most likely to provide support for anxiety (*n* = 79) and depression (*n* = 69) and least likely to provide support for suicidality (*n* = 25) or to offer no support at all (*n* = 19). Other areas related to the provision of support were assistance with self-harm (*n* = 55), symptoms of mania (*n* = 55) and eating disorders (*n* = 46). There may subsequently be a gap in the provision of support for suicidality as this is an uncommon issue.

Supporting spirituality, identity, and body image. Respondents were asked to indicate either yes or no as to whether they provided support for spirituality, identity and body image in their daily nursing practice. The responses indicated that while nurses provide relatively equivalent degrees of support across the spiritual (*n* = 44), identity (*n* = 48) and body image (*n* = 39) domains, their support for these areas is generally lower than any other domain (eg. adaptive behaviour or maladaptive/challenging behaviour).

INTER-AGENCY COLLABORATION

Respondents were asked to list the six main health and social agencies they collaborated with. Responses were categorically organised and are summarised in Tables 3 and 4. The most frequent health collaborations were allied health and medical consultations and the most frequent social agencies were with the NDIA and state-based trustee/guardianship services.

TABLE 3: SAMPLE RESPONSES (*N* = 506) FOR HEALTH INTER-AGENCY COLLABORATIONS

Category	*n*	%
Allied health	168	33.20
Specialist medical consultants	143	28.26
GPs and other primary health	98	19.37
Hospitals – in-patient	57	11.26
Nurse specialists	19	3.75
Health and outpatient clinics	9	1.78
Other	12	2.37

TABLE 4: SAMPLE RESPONSES (*N* = 312) FOR SOCIAL INTER-AGENCY COLLABORATIONS

Category	*n*	%
National Disability Insurance Agency	75	24.04
State-based trustee and guardianship agencies	67	21.47
Disability service providers	55	17.63
National Department of Human Services	36	11.54
State-based disability and community agencies	32	10.26
Education providers	23	7.37
State-based justice agencies	5	1.60
Advocacy services	5	1.60
State-based child protection agencies	2	0.64
Out of home care service providers	2	0.64
Aged care service providers	2	0.64
Other	8	2.56

PROFESSIONAL CONTRIBUTIONS

Professional contributions covered the following options: 1) Develop and deliver education packages, 2) Develop practice guidelines/policies, 3) Supervision of other staff, 4) Contribute to other staff career development, and 5) Do not supervise or provide development of paid caregivers. Nurses were more likely to supervise other staff (*n* = 86), and as a natural consequence of that, unlikely not to be engaged in supervision or development of paid caregivers (*n* = 19). Developing and delivering education (*n* = 45), developing practice guidelines/policies (*n* = 39), and contributing to other staff career development (*n* = 46) were reported in similar degrees by nurses in this sample. Hence, nurses are most likely to be engaged in the supervision of others than any other aspect of their professional contribution.

RESEARCH PARTICIPATION

To determine the extent to which nurses participated in IDD research, respondents were asked to respond to each of four statements: 1) do not research, 2) read and use research, 3) support others in conducting research, and 4) conduct research myself. Participant responses indicated that nurses were more likely to read and use research ($n = 62$), than they were to conduct research themselves ($n = 7$). The frequencies for not being involved in conducting research ($n = 30$) and supporting others in conducting their research ($n = 29$) were approximately even.

OVERVIEW OF PEOPLE WITH IDD SUPPORTED AND CONTEXT OF SUPPORT

Nurses were asked questions about the demographic profile of the people with IDD they work with. Consistent with expectations, most clients were aged 18–64 ($n = 75$), with relatively fewer children ($n = 17$) and/or older clients ($n = 8$). In terms of gender, eight respondents reported working only with females, 26 only with males, 64 with 50/50 male/female (two non-disclosed).

Respondents were asked to select from eight possible locations indicating their main area of practise: 1) aged care facility, 2) family home, 3) group home, 4) semi-independent living with staff support, 5) correctional or forensic setting, 6) independent living with home services, 7) independent living with informal unpaid carer support, and 8) high dependent living with staff intervention. Nurses were most likely to be working in a disability group home ($n = 59$) or in high-dependent living with staff intervention ($n = 50$), and unlikely to be working in a correctional/forensic setting ($n = 8$), aged care facility ($n = 13$), or independent living with informal unpaid support ($n = 15$).

DISCUSSION

This is the first study to survey Australian nurses whose primary role is to care for people with IDD. The findings extend previous work which offers a field-specific preliminary nurse-led, relationship-centred model of care.[1,4] In particular, the number and range of health and social service collaborations that nurses interact with exemplify the extent of the relationship-centred model of care provided. Nursing practice, although centred on physical health needs, covers a range of domains that make this speciality area of nursing practice unique. That is, few, if any, other nursing specialties cover a breadth of practice involving physical care, support for adaptive behaviour skills, responding to challenging behaviours, support for mental health, and spirituality, identity and body image across the lifespan and across multiple contexts. This has implications for nurses and for the people in their care. Nurses need instruction and experience in a wide range of social and clinical fields in order to integrate effective care with a uniquely relational approach. People with intellectual disability receiving the care of nurses need to be assured that the physical and social care that they receive is of high quality across a broad range of needs and life experiences, and that this outcome is best achieved in the context of a relationship-centred model.[4]

As far as we are aware, there is only one other published study using a descriptive survey tool to explore the role of the nurse working with people with IDD.[25] Based on an analysis of 26 responses, the frequency of skills such as personal hygiene, medication administration, and mouth care are undertaken more than once per day, whereas skills such as urinary catheterisation and violence prevention were used monthly. Although these data have helped build the evidence-base,[2] our survey data offers significantly greater breadth and depth, and also represents a strong and contextually unique evidence-base for further research. The range of nursing roles fulfilled and the breadth of nursing practice described reflects the known complexity of health and social care needs associated with people with IDD, in particular the critical issues related to chronicity and polypharmacy.[3] This picture is also likely to reflect the growing recognition that with an ever increasing life expectancy, people with IDD are experiencing age-related health problems, chronic conditions and often multi-morbidity.[3,5] The future of nursing care for people with IDD will therefore rely on the adaptability of individual nurses to apply the skills already developed while working in the field of IDD and expanded to meet the needs of people with IDD into old age. This process of adaptation has been ongoing for many years as the population of people with IDD grows and their life expectancy lengthens.

The evidence around the ability of people with IDD to engage with services and access healthcare systems alongside increasing levels of multi-morbidity and the lack of knowledge and coordination in healthcare service highlights the value of the breadth of skills and range of roles of nurses who work with people with IDD. The ability to provide direct care across the domains of physical and mental health within the group home context, was complemented by their role in coordinating services and providing support and education to other health professionals for participants in this survey. That these skills appear to have been overlooked or under-valued by the NDIS policy framework is, in our view, an anomaly.[11] These are critical nursing skills that could also be implemented beyond the NDIS, within health-system based liaison roles, such as in the UK and Ireland,[15] to help counter avoidable deaths in acute hospital settings. The limited amount of active research being undertaken by these nurses does present a major role limitation, in particular for nurses working in more advanced roles as this is required to build the evidence base.

LIMITATIONS

Inconsistent responses across geographical areas of Australia limits the generalisability of the findings across the national nursing workforce. The healthcare needs of people with IDD are not limited by geographical distribution, and therefore, combined with a response rate of N=101, we propose that the findings represent a reasonably confident summary of nurses' roles, practices and contexts when caring for people with IDD. We acknowledge that the iterative method used to build an NDIS registered service provider list for recruitment may have meant the exclusion of some prospective respondents. Further, we acknowledge that the nature of descriptive studies using a cross-sectional design, while offering breadth to data collection, often means that the granularity of data, and therefore interpretation, may be limited.

CONCLUSION

Nurses working with people with IDD demonstrate a breadth and depth of practice reflective of the diverse needs of people with IDD and the diverse roles played by the nurses. In light of the evidence around poorer health outcomes of people with IDD and the growing need for preventative healthcare amongst an ageing IDD population, demand will grow for the inclusion of nurses in the care of people with IDD. However, we are facing the dual issues of an ageing and increasingly invisible workforce. It is vital that we do not overlook the value of the IDD workforce nor erode their role as policy in the IDD space evolves.

IMPLICATIONS FOR RESEARCH, POLICY AND PRACTICE

This cross-sectional study provides a basis upon which further research about the contribution made by these Australian nurses can progress. In particular, more focussed research about the economic benefits of disability services employing nurses and description and effect of nursing interventions specific to people with intellectual and developmental disability is required. Just as importantly, theoretical work to conceptualise new, National Disability Insurance Scheme-ready models of nursing care for people with intellectual and developmental disability is needed in order for this sector of the nursing profession to develop and advance. Extant models of specialist practice such as those in operation in the UK and Ireland could combine with models of nursing care designed and implemented in the Australian contexts in order to serve the needs and support the abilities of Australians with IDD. The results of this study indicate that any such models would have to combine recognition of nurses' skills in delivering direct care to people with IDD with their capacity to develop lasting therapeutic relationships with those for whom they care.

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RESEARCH ARTICLES

Recognition for registered nurses supporting students on clinical placement: a grounded theory study

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ABSTRACT

Objective: This study examined registered nurses' perspectives of being supportive of nursing students and providing them with learning opportunities when on clinical placements.

Background: In Australia, as part of their three-year Bachelors degree, undergraduate nursing students undertake a minimum of 800 hours of clinical placement. During these clinical placement hours, nursing students are supervised by registered nurses who are required to be supportive of the students and provide them with learning opportunities.

Study design and methods: This study used a grounded theory approach. In this qualitative study there were fifteen registered nurse participants. Thirteen participants were female participants and two were male. Participants were individually interviewed. Transcripts from these in–depth interviews were analysed using constant comparative analysis.

Results: The major category, an added extra, emerged from this study. An added extra is about registered nurses' perception that having a student is an added extra to their daily duties. The major category an added extra is informed by three emergent themes. The first theme was time, the second theme was workload and the third theme was wanting recognition.

Discussion: Registered nurses perceived that their workloads tend not to be taken into consideration when they have nursing students. The literature suggests that nursing students often miss out on learning opportunities when they are on clinical placement because registered nurses do not have additional time to effectively support students' clinical learning.

Conclusion: Participants in this study believed being supportive of nursing students and providing them with learning opportunities was an added extra to their daily nursing duties. Findings revealed registered nurses want to be recognised for the extra time and effort they dedicate to students' learning.

Implications for research, policy, and practice: When allocated nursing students, registered nurses should have their workloads adjusted because being supportive of nursing students and providing them with learning opportunities is time consuming. Further research is recommended to determine if patient workloads are being decreased when registered nurses are allocated nursing students.

Keywords: Nursing student, workload, preceptorship, qualitative, clinical education

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What is already known about the topic

- Registered nurses struggle to find the time to support nursing students with their clinical learning.
- Management tend not to recognise the time and effort registered nurses dedicate to student learning.

What this paper adds

- Registered nurses perceive supervising nursing students as an added extra on top of their already heavy workload.
- Registered nurses want to be acknowledged for their contribution to student learning.

INTRODUCTION

Across the globe, nursing standards state that when nursing students are on clinical placement registered nurses (RNs) will be supportive of the students and provide them with learning opportunities. The leading body in global health care, the World Health Organization declares that all RNs are required "to supervise and teach" nursing students.[1(p26)] Countries such as Australia, Canada, Finland, United States of America and United Kingdom also have this requirement embedded within their own nursing standards.[2–7] This Australian study examined RNs' perspectives of being supportive of students and providing them with learning opportunities.

Registered nurses who are licenced to practice in Australia are required by law to practice according to the Nursing and Midwifery Board of Australia's (NMBA) professional codes and guidelines.[8] Within the RN standards for practice it states the RN "actively fosters a culture of safety and learning that includes engaging with health professionals and others, to share knowledge and practice that supports person-centred care".[2(p3)] Furthermore the NMBA Code of conduct for nurses states RNs must "commit to teaching, supervising and assessing students…"[9(p5)] and that it "is the responsibility of all nurses to create opportunities for nursing students".[9(p13)] This is important because nursing students rely on RNs for their support during their clinical learning when they are on placements.[10]

Undergraduate nursing students in Australia are required to complete a minimum of 800 clinical placement hours over the course of their three year Bachelors degree.[11] Clinical placement hours are undertaken in either a facilitator or preceptorship model. In the facilitator model a clinical nurse educator oversees the placement of a group of students and these students are then allocated to a RN mentor on a shift by shift basis, whereas, in the preceptor model the student is allocated to an individual RN for (most of) their placement.[12] It is not unusual for nursing students to be allocated to a different RN on any given day of their placement. Regardless of which model is used, RNs are bound by their registration requirements to be supportive of nursing students and provide them with learning opportunities.

The impetus for this study came from anecdotal observations of inconsistency in regard to support offered by RNs to nursing students on clinical placement. The study aimed to examine RNs' perspectives of being supportive of nursing students and providing them with learning opportunities when on clinical placements. The research question being examined was: what are RNs' perspectives of being supportive of nursing students and providing them with learning opportunities when on clinical placements?

METHODOLOGY

Grounded theory was chosen as the methodology for this project because little research was found around this issue and no theory found on the actual topic itself.[13] The study site for this grounded theory study was in Australia. Ethical approval (No: HE12/141) was obtained from the University Health and Medical Human Research Ethics Committee prior to commencement of this research. Participants ($n = 15$) were RNs who had been licenced to practice for a minimum of five years and had previously worked alongside nursing students. Participants were from the following nursing designations: clinical RNs, nursing managers and clinical educators. Two participants were male and the remaining thirteen were female.

Individual semi structured interviews were recorded using a digital recorder and then transcribed and analysed. Interviews with participants were approximately forty-five minutes in duration. One researcher was responsible for interviewing participants. As data from each interview was analysed, data was coded, and these codes were sorted into themes. As data was collected, it was compared with existing data using constant comparative analysis technique. Theoretical data saturation was achieved with fifteen participants; that is, no new information appeared. Four major categories emerged from the data: an added extra, choice, nursing standard and sense of responsibility. This paper reports on one of the major categories that emerged from this study, an added extra.

FINDINGS

The major category *an added extra* was informed by three emergent themes. The first of these themes was *time*, the second was *workload*, and the third was *wanting recognition*.

AN ADDED EXTRA

This study revealed that RNs believed that being supportive of nursing students on clinical placement and providing them with learning opportunities was an added extra to their [RNs'] allocated work. Despite this, they felt that being supportive of nursing students on clinical placement and providing them with learning opportunities was the right thing to do.

Figure 1 offers a representation of the relationship between the three themes (*time, workload* and *wanting recognition*) that inform the major category *an added extra*. The theme *time* is about the students taking up an RN's time. The second theme, *workload*, is about students adding to an RN's workload. The third theme, *wanting recognition*, is about RNs wanting to be recognised for their efforts with students. These themes all underpin the concept that being supportive of students on clinical placement and providing them with learning opportunities was perceived as *an added extra* for an RN's already busy work day.

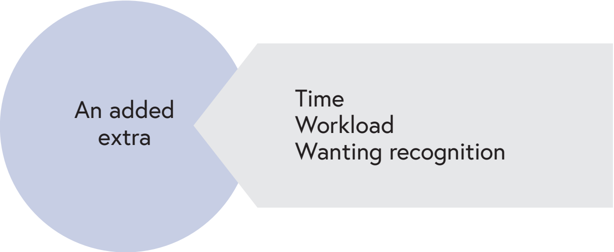

FIGURE 1: AN ADDED EXTRA

TIME

The emergent theme, time, will be discussed first. Time is about participants asserting that being supportive of nursing students on clinical placement and providing them with learning opportunities takes up their time. Participants explained how they would have to spend extra time in their day to support the students and to provide them with learning opportunities. Part of this was due to students taking extra time to complete a given clinical task and to practice a basic nursing skill.

> *'I mean you might be able to do something fairly quickly but the poor old student when they're learning, they're learning. So it will take twice, three times as long … And if your time constraints are really limited that makes it hard. Where I am now, I mean our time constraints are still fairly limited. We've got a certain amount of time we can really allocate to all of our patients that come through and that can change.'* (Participant 5)

> *'Teaching takes a lot of time especially if you're going to go into a little bit of the pathophysiology and a lot of our work now and our own education is leading more towards care of the deteriorating patient. So if you're teaching that, that takes time.'* (Participant 1)

> *'Because having students does take up time. You're explaining medications or how to give medications or why you're giving medications, whereas if it was just you on your own you'd just go in and give them. You know why you're giving them and when they're due and why they are due then. But when you've got the students with you it does take you that little bit extra time to go through and do it.'* (Participant 2)

Participants explained how they wanted management to acknowledge that being supportive of nursing students on clinical placement and providing them with learning opportunities took extra time in their already busy days. In exchange they were asking that their patient workload be decreased so they could have the extra time to support the students and provide them with learning opportunities.

> *'Well more time as in … if we've got a student cut our workload … if they cut the workload say for example say if I've got 8/9 hours work, why can't I just have 4 and 4. 4 hours like we do when we're coordinating a shift, 4 hours clinical, 4 hours admin, why can't the 4 hours admin be for students.'* (Participant 7)

> *'I think there needs to be time given for anyone that's preceptoring to be able to do that with the student as opposed to the way that we do operate, it's like okay,* [NAME] *you're having the student today and you're going, you don't know what their skills are. So then you've got to start from the beginning as far as you're concerned, because you haven't seen them do anything. Does that make sense?'* (Participant 10)

> *'I think that in the workplace when the students are there we need to be able to allocate time to them – for the facilitators.'* (Participant 2)

This participant explained how being supportive of nursing students on clinical placement and providing them with learning opportunities could take up to two hours out of an RN's day.

> *'Unfortunately though I think it comes back to staffing sometimes and availability of staff. They just don't have the two hours to give you to spend with the student, just to take that extra time out to explain why something's done this way, or even if it's to debrief with them something's that happened on the ward that they've had trouble grasping or it's been traumatic for them or whatever.'* (Participant 2)

Indications were that having extra time also benefits a student's learning:

> *'Oh definitely. I mean sometimes yes, when you are doing your teaching and your skills you go a little bit slower so that you might be demonstrating it to the students, when they may be*

> *actually taking that skill on board and trying it themselves, you're going to go a little bit slower but they are teaching moments as well.'* (Participant 10)

Participants voiced that being supportive of nursing students on clinical placement and providing them with learning opportunities takes up an RN's time. Because of this, participants urged that RNs be given extra time, by decreasing their patient workloads, if they are allocated students.

WORKLOAD

Participants believed being supportive of nursing students on clinical placement and providing them with learning opportunities was something they did on top of their workload. Time and workload are closely aligned. Participants felt that because of the extra workload that goes with having a student, their patient load should be reduced during this period. Nevertheless, time and workload formed different themes because time is about how being supportive of nursing students and providing them with learning opportunities is time-consuming, whereas workload relates to how having a student adds to an RN's workload.

The following participant describes the connection between time and workload. They explain how being supportive of nursing students on clinical placement and providing them with learning opportunities takes time, but also that it can intensify their already heavy workloads making the experience stressful:

> *'You don't have that time to stand back which is probably where my anxiety comes from wanting to do it for them and wanting them to make that connection a lot faster … You know instead of being able to stand back and let – just watch. I want to do it for them because I still know that I've still got X, Y and Z to do and this is only T.'* (Participant 1)

These participants explained how having a student added to their workload:

> *'When I worked on the wards sometimes it could be really hard because … you'd just seem to be overwhelmed sometimes with the work … the work demands plus you're trying to teach at the same time.'* (Participant 2).

> *'So, if you're doing that and then you're going on to the next procedure that you might be doing or the next thing, or debriefing, you might go and talk to a family that has a dying – well the family of a dying person, so you're dealing with that and then you come out and the person's – the student can maybe see – some of them have never seen a dying patient. So then you're talking that through. So by the end of 8-hours you haven't just done your 8-hours work, you've also done 8-hours of coaching. So to – you have to be fair to the nursing staff. They are on shift work, they are carrying a heavy load and they're also having students.'* (Participant 8)

Although it was indicated that having students added to the workload, participants also described how they were still "happy to have students".

> *'Yes it does. We always had student nurses when I trained so I couldn't draw from that experience, it was always first, second and third year nurses on the ward and if you were a second year nurse you looked after the first year nurses. If you were a third year nurse you looked after the rest. So, yes it does add to your workload but I wouldn't say in a negative way.'* (Participant 12).

This participant affirmed that workload should be taken into consideration when RNs are allocated students.

'Absolutely happy to have students. Really need to look at the workload if you're given a student.' (Participant 1)

Because of the perceived extra workload associated with having students, participants also said they wanted recognition for being supportive of students and providing them with learning opportunities.

WANTING RECOGNITION

The theme wanting recognition is about participants saying they wanted to be recognised for the extra effort and time they took to be supportive of students and provide them with learning opportunities. This participant indicated that RNs did not want gifts or money; they just wanted to be acknowledged that they put in time and effort into the students' learning:

> *'I think especially if they're allocated a specific student for the whole duration and that student works the shifts that they work, I think there should be some – it doesn't have to be big recognition, but just a certificate to say that they have preceptored the student, or mind you the students are often recognising the staff they work with anyway…But, yes I think they do, they want recognition that they are doing this and I don't think it's so much monetary or like a gift or anything, just to be acknowledged that that's what they've done…and you hear it when you're in senior meetings and things – the discontent or the concerns that staff raise so – and in senior meetings you tend to hear the same recurring theme as well, and it is things like you know we just want to be given some recognition that we are doing this with our students and especially when there's some that don't have students at all.'* (Participant 9)

This participant also suggested that RNs should be rewarded with a certificate when they have done the *added extra* work with students.

> *'I think at the end of the day they should be rewarded with a really nice sort of certificate saying look, outstanding contribution to undergraduates' placement'* (Participant 7)

This participant described how certificates of acknowledgment can make an RN feel appreciated:

> *'Where they have the person's name on a certificate on the wall, so you're walking past you might see somebody's name ten times . . . Yes, it sort of feels good at the end of the day.'* (Participant 7)

Finally this participant was adamant that RNs need to be rewarded when they have been supportive of nursing students on clinical placement and provided them with learning opportunities.

> *'And even some sort – even if it was a pen or a notepad or something – who's going to thank them for it at the end of the day, but at the end of the day the registered nurse has to be rewarded.'* (Participant 7)

Findings revealed that participants believed being supportive of nursing students on clinical placement and providing them with learning opportunities was an added extra to their normal duties. Participants described how being supportive of nursing students and providing them with learning opportunities was both time consuming and increased their workload. As such participants indicated that RNs would like to be recognised for their contribution to student learning.

DISCUSSION

The concept that having a student is an added extra was found to be a repetitive theme in this study. Other studies also support the notion that being supportive of students and providing them with learning opportunities is perceived as an added extra for RNs.[14,15]

Congruent with findings from this study, the literature also supports the notion that being supportive of students when they are on clinical placements and providing them with learning opportunities takes up RNs' time.[16,17] Registered nurses often feel they are too time poor to spend the extra time that it takes to provide students with quality learning opportunities.[18] This has been highlighted as a major concern for RNs who are keen to assist the students in their clinical learning.[19] McInnes, Peters, Hardy and Halcomb suggest that RNs who are given students should be allocated extra time so they can be supportive of the students and provide them with quality learning opportunities.[20]

According to Madhavanpraphakaran, Shukri, and Balachandran RNs struggle balancing their patient workload and helping students with their clinical learning. Workload pressures can adversely effect the quality of students' clinical learning during their placements.[21,22] Yonge, Krahn, Trojan, Reid and Haase describe how management tends to disregard the additional workload that accompanies having a student. Furthermore they assert that because of the extra workload that goes with having a student, patient care can be affected. Finally they suggest that patient loads need to be decreased if an RN is allocated a nursing student.[14]

Regardless of the evidence in the literature that recommends RNs' workloads be reduced if they have students, in the real world RNs are not a given a lesser workload when they are allocated students.[15] Concerns about the additional workload associated with having student makes some RNs not want students at all.[23] Students are sometimes left with minimal clinical supervision because the RNs' workload does not allow time for the student.[24] This can result in students being deprived of important learning opportunities which can ultimately affect their ability to learn how to practice safely. Management needs to be cognisant of how [lack of] time and workload can affect students' learning.

Between the years 2011 to 2013 clinical placements cost the Australian government approximately $425 million.[25] Clearly, in Australia, large amounts of money are vested into clinical placements for nursing students. With this in mind it would not necessarily be cost-effective for government or healthcare agencies to decrease RNs' workloads when they have students as this would mean that even more money would be spent on clinical placements. According to findings from this study however management should give RNs extra time by decreasing their workload when they are allocated students. Increasing staffing levels to accommodate student learning may be a financial issue at the healthcare facility and may appear to be beyond nursing management's jurisdiction, however creating a healthy and manageable work environment is important in order to achieve best healthcare outcomes for patients.

Registered nurses also want recognition for the time and effort they spend being supportive of nursing students and providing them with learning opportunities.[26] Evans, Costello, Greenberg and Nicholas found that RNs can become disheartened and not want students because the extra work that goes with having a student is not necessarily acknowledged by management.[16] The literature supports the finding that RNs want some sort of acknowledgement for the additional effort and time they dedicate to being supportive of students and providing them with learning opportunities.[27] Both healthcare management and tertiary institutions should acknowledge RNs' efforts with students.

LIMITATIONS

There are some limitations to this study. The researchers acknowledge that prior to the commencement of the study they had a preconceived idea that students were experiencing a lack of support from RNs during clinical placements. To avoid researcher bias, the researchers were careful not to allow their own preconceptions and personal opinions to influence the outcomes of the research by remaining objective during the entire research process.[28] Being a qualitative study, the sample size was not large ($n = 15$) and participants were recruited from only one Australian state: Queensland. That being said, the aim of grounded theory research is not to gain statistical data, rather it is to gain a deep understanding of a given social phenomena.

CONCLUSION

Results from this study revealed that participants perceived that having nursing students and providing them with learning opportunities is time consuming and adds to their workload. As such RNs in this study expressed a desire for recognition and acknowledgement of the extra work that is required in supporting a student; particularly from management. The participants believed RNs' workloads should be reduced if they are allocated students so they have more time to be supportive of the students and to enable them to provide quality learning opportunities. This study is important because management needs to be mindful of the extra time involved in having a student and to adjust the RNs' workload accordingly when they are allocated students. Furthermore management and the tertiary sector need to acknowledge RNs' efforts for working with students. In summary RNs in this study believed that being supportive of nursing students and having to provide them with learning opportunities was an added extra to their daily duties.

RECOMMENDATIONS

- Registered nurses need to be acknowledged for the time and effort they dedicate to student learning.
- Nursing management should decrease RNs' patient workloads when they have nursing students.
- Increase the overall ratio of RNs in the workplace to enable RNs to have the extra time to be supportive of nursing students and to provide them with learning opportunities. This, in turn, will increase patient safety thereby resulting in better patient outcomes.

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RESEARCH ARTICLES

The effects of a hospital-based perinatal breastfeeding program on exclusive breastfeeding in Taiwan: a quasi-experimental study

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ABSTRACT

Objective: To examine if a perinatal breastfeeding program would improve the exclusive breastfeeding rate at a baby-friendly hospital.

Background: The Ten Steps to Successful Breastfeeding and Baby-Friendly Hospital Initiative have been widely used to improve breastfeeding outcomes worldwide. A hospital-based multi-strategy intervention may provide an opportunity to increase breastfeeding in different countries.

Study design and methods: The study used a quasi-experimental design. Data was collected in a Baby Friendly hospital. A total of 60 mother-infant dyads were included. The experimental group took part in the multi-component perinatal breastfeeding program, while the control group received routine care. The multi-strategy program included prenatal breastfeeding education, birth kangaroo mother care (skin-to-skin contact and non-separation practices) at first breastfeed, continuous 24-hour rooming-in, ongoing kangaroo mother care with breastfeeding on cue, and hospital support visits. The exclusive breastfeeding rate was measured at hospital discharge, and one-month postpartum.

Results: The mothers who participated in the intervention had a greater exclusive breastfeeding rate at hospital discharge and one month postpartum than those in the control group. In the experimental group, 90% of the infants completed the first feeding within two hours after birth. At discharge, 93.3% of the mothers in the experimental group and 53.3% in the control group were exclusively breastfeeding. At one month postpartum, 83.3% of the mothers in the experimental group and 36.7% in the control group were still exclusively breastfeeding.

Discussion: The intervention program used in the current study is different to previous studies. The current intervention not only included prenatal education and postpartum support, but also included birth kangaroo mother care at first breastfeed and ongoing kangaroo mother care with breastfeeding on cue. Breastfeeding should be promoted through perinatal comprehensive clinical and social support starting in the prenatal period and continuing through intrapartal, postpartum, and follow-up periods.

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Conclusion: This study was the first study to use a hospital-based multi-strategy intervention including the non-separation of mother-infant dyads and other breastfeeding support for mothers in Taiwan. The program was associated with a significant improvement in the exclusive breastfeeding rate at one month postpartum.

Implication for practice: This study provided initial evidence to support the implementation of mother-infant non-separation practices in improving breastfeeding outcomes. Health professionals can be re-educated regarding birth kangaroo mother care at first breastfeed and ongoing kangaroo mother care with breastfeeding on cue without increasing nursing workloads while infants' fathers and other family members (eg. mothers-in-law/mothers' mothers) can be encouraged to participate in order to achieve family-centred maternity care.

What is already known about the topic?

- Early and exclusive breast feeding and ongoing breast feeding is the optimal form of nutrition for newborn babies and promotes positive infant and mother outcomes.
- Birth kangaroo mother care plays an important role in providing the optimal atmosphere for a baby's instinctive reflex ability to breastfeed effectively in order to help infant imprinting and suckling.

What this paper adds:

- The newly developed hospital-based perinatal breastfeeding program has demonstrated effectiveness in promoting exclusive breastfeeding rate at one month postpartum.
- Including birth kangaroo mother care at first breastfeed and ongoing kangaroo mother care with breastfeeding on cue in a perinatal breastfeeding program may lead to more positive breastfeeding experiences for new mothers.

Key Words: birth kangaroo mother care, breastfeeding on cue, exclusive breastfeeding, breastfeeding education.

INTRODUCTION

In order to be accredited as a baby-friendly hospital, a hospital must demonstrate compliance with the international criteria relating to the Ten Steps for Successful Breastfeeding and the international code of marketing for breast-milk substitutes.[1] Breastfeeding confers significant health benefits to mother-infant dyads and, consequently, is recommended for all infants worldwide. Exclusive breastfeeding is advocated as the optimal nutrition for infants in the first six months of life.[2] Breastfeeding is widely known to provide health, social, and economic benefits, and 96.29% of mother-infant dyads who participated in Taiwan's Baby-Friendly Hospitals Initiative have engaged in breastfeeding; however, only 44.8% of the infants were still exclusively breastfed at six months in Taiwan-based hospitals.[3] Overall, the global breastfeeding movement has had a significant impact on increasing initiation of breastfeeding worldwide. However, while breastfeeding initiation rates are high, the duration of exclusive breastfeeding is quite short. In Australia, 93% of women initiate breastfeeding, but only 66% still breastfeed at six months, and only 29% are exclusively breastfeeding at six months.[4]

Globally, the early termination of breastfeeding is commonly due to negative initial breastfeeding experiences and perceived insufficient milk supply,[5–7] and these factors are primarily related to breastfeeding experiences in the first days after birth. Negative initial breastfeeding experiences might stem in part from the current maternity healthcare practice paradigm of mother-infant separation. Two cross-sectional surveys in Poland illustrated the effects of separation versus non-separation of mother-infant dyads immediately after birth on breastfeeding outcomes.[8,9] Mazur, Mikiel-Kostyra, and their associates have identified various factors in maternity hospital care affecting exclusive breastfeeding.[8] The most significant factors in hospital care relating to decreased initiation, continuation, and exclusivity were breastfeeding initiation more than two hours post-birth, a lack of skin-to-skin contact, and mother-infant separation lasting longer than 24 hours.

Previous research has suggested the use of the following five interventions to facilitate the continuation of exclusive breastfeeding: prenatal breastfeeding education (PBE) for parents,[10–12] birth kangaroo mother care (BKMC) at first breastfeed,[1] continuous 24-hour rooming-in,[13–15] ongoing kangaroo mother care (KMC) with breastfeeding on cue,[16] and support from health professionals.[17] Therefore, it is important that non-separation practice (that is, skin-to-skin contact) is applied from birth to discharge to promote breastfeeding outcomes. It is also important for multi-strategy interventions to encourage parents to maintain exclusive breastfeeding for an extended duration. That said, as we found no previous studies utilising the intervention we used in the Taiwanese study, we consider this to be the first study in Taiwan to use an intervention combining "BKMC until the first breastfeed is completed" with other key strategies to promote an extended duration of exclusive breastfeeding.

BACKGROUND

Prenatal breastfeeding education (PBE) for parents is important as an effective single intervention for the promotion of breastfeeding. One of the psychosocial factors commonly affecting the early termination of breastfeeding is the lack of support from the father of the infant.[18] Consequently, infants' fathers need to participate in PBE in order to better support breastfeeding. A systematic review and meta-analysis provided evidence that PBE increases the initiation of breastfeeding and the short-term duration of breastfeeding, although it did not have a significant impact on the long-term duration of exclusive breastfeeding.[10,11,19] One early breastfeeding program reviewed in a previous study focused on the benefits of breastfeeding, traditional hands-on breastfeeding skills, and getting started.[20] However, the program did not provide any new information on the importance of the concept of mother-infant dyad non-separation or infant-led breastfeeding skills.[21] Rather, the program was designed to provide more general PBE and psychological preparation for parents.

The classifications of the stages of kangaroo mother care (KMC) are as follows: birth, very early, early, intermediate, and late stage.[22] Birth kangaroo mother care (BKMC) and very early kangaroo mother care (VEKMC) initially occur in the delivery room. BKMC begins immediately (within one minute) post-birth and before cutting of the umbilical cord. VEKMC begins after finishing initial infant care such as pharyngeal suction, Apgar score, drying of head and skin, and cord care - usually between 20 and 30 minutes post-birth. Early KMC occurs from the first hour to the first week post-birth and is done with infants who are easily stabilised and begins as soon as they are stable post-birth. Intermediate KMC usually begins after seven days post-birth when the infants have completed early intensive care, still require oxygen and may have apnea and bradycardia. Late KMC usually occurs many weeks post-birth when the infants have completed the intensive care phase, have stable respiration, and are breathing room air.[22]

The non-separation paradigm is defined as mother-infant dyads remaining together from the first minute after birth (called birth kangaroo mother care, or BKMC) until hospital discharge (called ongoing kangaroo mother care, or KMC). BKMC is defined as mothers holding their naked and full-term infants upright and prone, with skin-to-skin contact, on the mothers' abdomen or chest during the first minute after birth.[23] As a part of BKMC, infants are allowed to breast crawl[24–26] and have self-regulatory[27] access to breastfeeding. This is called "BKMC at first breastfeed." BKMC is the best practice for providing opportunities for the first feeding,[28] facilitating mother-infant bonding, facilitating mutual physiological adaptation, and encouraging longer durations of exclusive breastfeeding.[29–31] BKMC plays an important role in providing the optimal atmosphere for the instinctive reflex ability to breastfeed effectively in order to improve breastfeeding outcomes.

The definition of ongoing KMC is that full-term infants have skin-to-skin contact (SSC) with their mothers beginning within the first minute after birth and continuing as much as possible throughout the postpartum period. SSC involves the infant, wearing only a diaper, being placed between the mother's breasts and then covered by a blanket. Ongoing KMC is initiated in a hospital and can be continued at home. Evidence for ongoing KMC includes its effect on three major aspects of mother-infant dyads: (a) bonding;[32, 33] (b) physiology, such as thermoregulation[34] and analgesia;[35] (c) increasing parental sensitivity to infant cues;[33] and (d) breastfeeding initiation, duration, and exclusivity.[31] Ongoing KMC is the best practice for providing an opportunity for mothers to learn pre-feeding behaviour. BKMC at first breastfeed and ongoing KMC with breastfeeding on cue are critical for effective latch-on and suckling.[28] An ideal time for first latch-on occurs during BKMC, when infants use their sense of smell to locate the breast and nipple. Mothers learn the signs of prefeeding behaviour from engaging in KMC. Ongoing KMC helps infants to stay calm and quiet and facilitates the initiation, continuation, and exclusivity of breastfeeding. When mothers are encouraged to breastfeed on cue, they need support from health professionals and family members.

Health professional support[36] and support from the infant's father[37] are beneficial and valuable to the initiation and continuation of breastfeeding. Mother-infant dyads need breastfeeding support from the infants' fathers and health professionals prior to hospital discharge so that the mothers can go home confident of adequately nourishing their infants, establish and maintain a rich milk supply, and avoid psychophysiological breastfeeding problems (such as the delayed onset of lactation and perceived insufficient milk supply). Interventions combining PBE with health professional support were the most common interventions for improving breastfeeding intentions and outcomes.[38,39] However, no combined interventions were found in the previous studies conducted in Taiwan. Our study thus incorporated the various international recommendations on PBE for parents, BKMC at first breastfeed, continuous 24-hour rooming-in, ongoing KMC with breastfeeding on cue, and health professionals' support into a single program, which we called a perinatal breastfeeding program (PBP), for healthy primiparous mothers who gave birth vaginally to healthy full-term infants at a baby-friendly hospital in southern Taiwan. The purpose of the study was to examine the effectiveness of this PBP in terms of improving exclusive breastfeeding rates at hospital discharge, and one-month postpartum.

METHODS

The study used a quasi-experimental design. In order to minimise contamination across groups, the study first investigated a control group that received routine care before then investigating the experimental group that took part in the PBP. The study included healthy and pregnant women in the third trimester of their first pregnancy who were receiving regular prenatal care. The participants were recruited before giving birth using several criteria: (a) primigravida status, (b) vaginal delivery, and (c) willingness to breastfeed. However, they were excluded if they had (a) pre-existing medical problems or (b) complications with their pregnancy such as preeclampsia or eclampsia. After birth, a second check of eligibility for the study was conducted in the delivery room. The mothers and infants were included in this check. The infant inclusion criteria were: (a) singleton status, (b) a 1-min Apgar score of 7 or greater, and (c) 37–42 weeks of gestation at birth. The criteria of (b) and (c) define a healthy full-term infant, which was a prerequisite for doing BKMC. Potential participants were excluded based on the conditions of separation of infant-mother dyads that interfered with the initiation of breastfeeding such as: (a) mother had postpartum complications or (b) infant had a congenital disease or an acute illness.

This study was conducted at a baby-friendly medical centre in southern Taiwan. Primigravida women who met the inclusion criteria were contacted by the researcher at 34–37 weeks' gestation for a face-to-face interview at a regularly scheduled prenatal clinic appointment. The study used a nonprobability, convenience sample of third trimester primigravida women. For sample size calculation, a medium effect size was set at 0.3. The alpha was set at 0.05, power at 0.80, and number of repetition at 2. We used G-Power version 3.1, applying the F-test approach with a 20% drop-out rate.[40] At least 56 mother–infant dyads were needed.

The maternal prenatal demographic questionnaire (MPDQ) included the mother's age, education level, occupation, parenting leave, whether the mother attended group breastfeeding classes, and the father's support for breastfeeding. The BKMC log included the timing of SSC, duration of KMC, timing of first feeding, and duration of the first breastfeeding session. A KMC log was provided to the mothers to record the frequency and duration of KMC. The researcher obtained the total hours of rooming-in from nursing records. The Index of Breastfeeding Status (IBS) was used to measure the exclusive breastfeeding rate. The IBS is a self-report instrument used to measure the pattern and incidence of breastfeeding status. The IBS has the following categories: exclusive breastfeeding, almost exclusive breastfeeding, high breastfeeding, partial breastfeeding, token breastfeeding, and formula feeding.[41] Exclusive breastfeeding is defined as 100% human milk and no other liquid or solids given to the infant. Almost exclusive breastfeeding is defined as human milk plus vitamins, minerals, water, or juice given infrequently. High breastfeeding is defined as above 80% human milk with one or less than one formula feeding per day. Partial breastfeeding is defined as more than one formula feeding per day. Token breastfeeding refers to breastfeeding for comforting the infant and not for nutritional reasons. Formula feeding refers to no breastfeeding. If the mothers chose to mix feeding or stop breastfeeding their infants, they were asked when they started mixing or stopped breastfeeding, and what the reasons for the decision were.[41]

The BKMC log and KMC log recorded the implementation of the intervention. The IBS recorded the classification of the infant feeding and collected the qualitative data, such as a reason for formula feeding. Therefore, the reliability of the instruments for variables are not applicable. The MPDQ was completed during the aforementioned prenatal visit. MPDQ (prenatal clinics), BKMC log (after birth immediately), and IBS (before hospital discharge and one month postpartum) data were collected from both groups, while KMC log data were only collected from the postpartum experimental group.

THE PBP AS INTERVENTION

The PBP is a theoretically based intervention used to provide PBE and postpartum breastfeeding support for the parents. The control group was studied first and received routine care. When data collection for the control group was completed, 26 nursing and medical staff were instructed about the intervention in a one hour session. The training course included information on the PBP, particularly focused on BKMC at first breastfeed and ongoing KMC with breastfeeding on cue. Appendix A (see Supplementary Data File) details how the PBP used the Prenatal-Intrapartum-Postpartum-Follow-up model to guide the study. Appendix B (see Supplementary Data File) shows the differences between routine care (control group) and the PBP (experimental group).

Each of the couples in the experimental group participated in a 90-min one-on-one PBE session before birth. They also received a booklet with an audio-video CD-ROM titled "New Idea of Successful Breastfeeding" (Image 1, Supplementary Data File) that was developed by the researcher. The contents of the booklet and the supporting audio-video CD-ROM were validated by three health professionals and three mothers who had breastfeeding experience. All of the couples were asked to read the booklet and watch the video before the PBE class. The PBE was implemented during the third trimester of pregnancy.

The researchers provided a kangaroo sling to each of the experimental mother-infant dyads for safety during ongoing KMC, as well as a booklet to guide the mother on how to engage in ongoing KMC and how to monitor the safety of the ongoing KMC (Image 2, Supplementary Data File).

DATA ANALYSIS

The research hypothesis was that mothers who participate in the PBP will have a greater incidence of exclusive breastfeeding when compared to those in the control group at the time of hospital discharge and one month postpartum. Data were coded and analysed by using SPSS version 20.0 for Windows. The MPDQ, BKMC log and KMC log data were analysed using the independent t test, Chi-square test and Fisher's exact test. The IBS data were analysed using the Chi-square test and Fisher's exact test. Descriptive statistics, including frequencies, means, and standard deviations, were used to examine the demographic characteristics. The independent t test, Chi-square test, and Fisher's exact test were used to analyse differences between the two groups.

ETHICAL CONSIDERATIONS

With respect to ethical considerations, the study was approved by the Institutional Review Board in the study hospital (IRB number: KMUH-IRB-980062). All of the participants agreed to participate and signed an informed consent form.

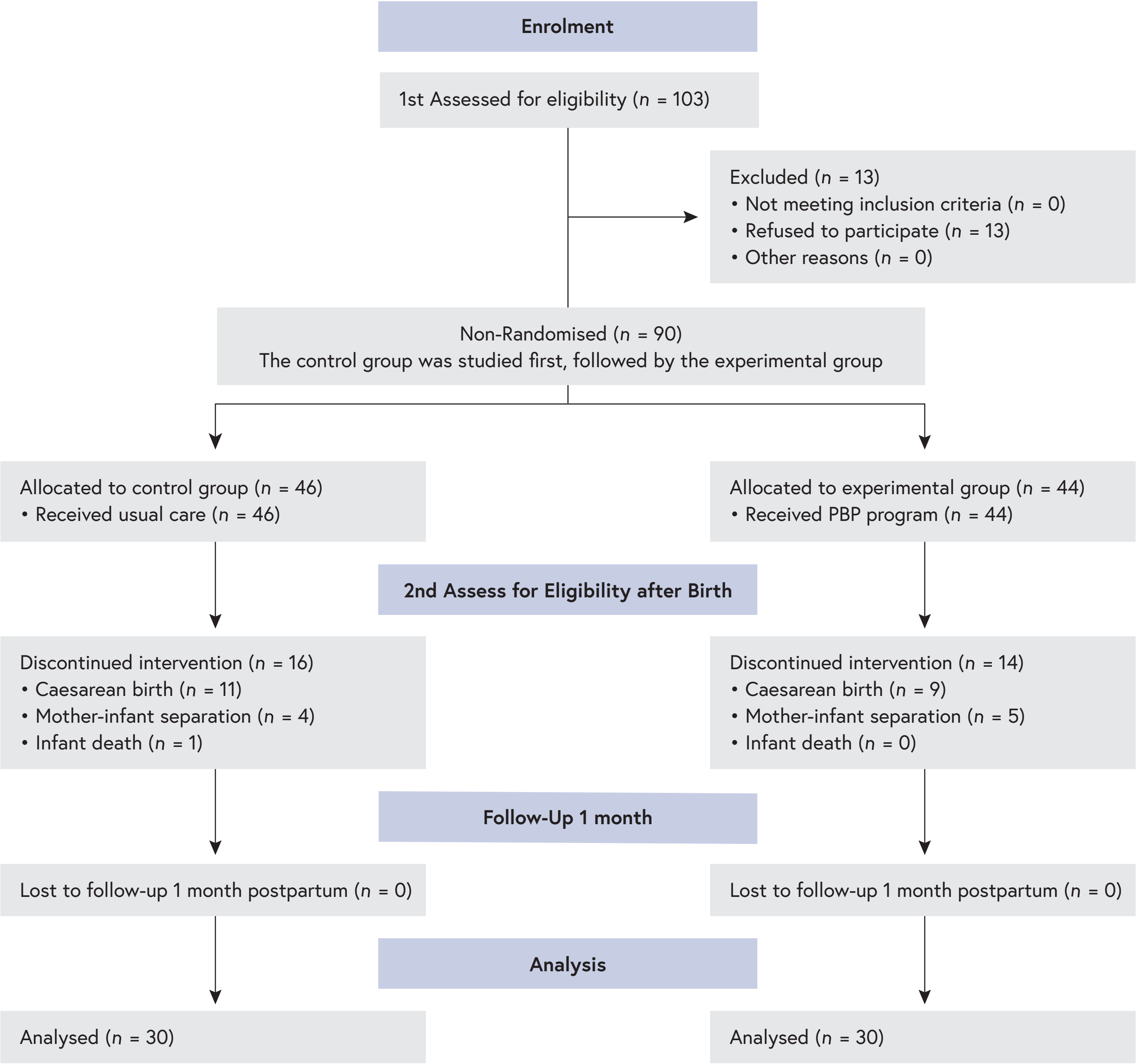

FIGURE 1: FLOWCHART OF PARTICIPANTS' RECRUITMENT

RESULTS

A total sample of 103 pregnant mothers was recruited. Thirteen of these potential participants declined participation and the remaining potential participants were assigned into the control group (CG, $n = 46$) or the experimental group (EG, $n = 44$). Then, at the second assessment of eligibility after birth, 30 potential participants were excluded due to having cesarean birth ($n = 20$), infant death ($n = 1$) or mother-infant separation ($n = 9$), leaving a final total of 60 participants (CG, $n = 30$; EG, $n = 30$) who were included in the study (Figure 1).

Ninety percent of the infants' fathers were very supportive or supportive of breastfeeding in the MPDQ (Table 1). With the exception of taking prenatal group breastfeeding classes ($p = .029$), there were no significant differences between the experimental group and the control group with regard to the demographic variables. This difference reflected the fact that a greater number of mothers in the control group (43.3% vs. 16.7%) had taken a prenatal group breastfeeding class (Table 1).

TABLE 1: PRENATAL DEMOGRAPHIC CHARACTERISTICS

Measure	Total Group	PBP Group	Control Group	Statistics		
	$N = 60$; M (SD)	$n = 30$; M (SD)	$n = 30$; M (SD)	x^2	t	p
Maternal age (years)	31.25 (3.28)	31.33 (3.68)	31.17 (2.89)		–.20	.85
	n (%)	*n* (%)	*n* (%)	x^2	t	p
Maternal education level						
≤ 12 years	10 (16.7)	03 (10.0)	07 (23.3)	1.97 [a]		.30
> 12 years	50 (83.3)	27 (90.0)	23 (76.7)			
Maternal occupation						
Non-medical	32 (53.3)	14 (46.7)	18 (60.0)	1.07		.30
Medical	28 (46.7)	16 (53.3)	12 (40.0)			
Parenting leave						
Yes	11 (18.3)	05 (17.2)	05 (20.0)	.07		.80
Group breastfeeding classes						
Yes	18 (30.0)	05 (16.7)	13 (43.3)	5.08		.029*
Paternal breastfeeding support						
Neutral	06 (10.0)	03 (10.0)	03 (10.0)	.44[a]		.93
Supportive	18 (30.0)	10 (33.3)	08 (26.7)			
Very supportive	36 (60.0)	17 (56.7)	19 (63.3)			

Note. PBP = perinatal breastfeeding program; [a]Fisher's exact tests were used for cell sizes < 5; * $p < .05$.

TABLE 2: OUTCOMES OF INTRAPARTUM-POSTPARTUM INTERVENTION

Measure	PBP Group	Control Group	Statistics		
	$n = 30$; M (SD)	$n = 30$; M (SD)	x^2	t	p
Timing of SSC (hr:min) at birth	00:02 (0:03)	00:14 (0:04)		13.09	.00***
Duration of SSC (hr:min) [b] at birth	01:19 (0:21)	01:06 (0:25)		–2.23	.02*
Timing of first feeding (hr:min) [b]	01:33 (1:40)	07:09 (8:43)		3.34	.00**
Rooming-in hours (hr:min)	19:55 (7:19)	20:10 (5:45)		.15	.88
Duration of KMC (hr:min)	06:52 (4:26)	00:00 (0:00)		–8.45	.00***
	n (%)	*n* (%)	x^2	t	p
First feeding ≤ 2 hrs. after birth					
Yes	27 (90.0)	04 (13.3)	40.05 [a]		.00***
KMC (Day 2)					
Yes	24 (80.0)	00 (.0)	50.74		.00***

Note. PBP = perinatal breastfeeding program; SSC = skin-to-skin contact; KMC = kangaroo mother care.
[a]Fisher's exact tests were used for cell sizes < 5. [b]Missing data; * $p < .05$. ** $p < .01$. *** $p < .001$.

With the exception of the duration of rooming-in hours, there were statistically significant differences in the implementation of the interventions included in the PBP, reflecting the fact that the control group did not receive the PBP intervention (Table 2).

In the experimental group, 90% of the infants completed the first feeding within two hours after birth. There was a statistically significant difference between the two groups in the timing of the first breastfeeding ($t = 3.34$, $p < .01$; $x^2 = 40.05$, $p < .001$).

The numbers of mothers continuing to breastfeed in the total study cohort, the control group, and the experimental group are presented in Table 3.

TABLE 3: INDEX OF BREASTFEEDING STATUS (IBS)

Measure	PBP Group	Control Group	Statistics	
	n = 30; *n* (%)	*n* = 30; *n* (%)	x^2	*P*
IBS (T_1)				
Exclusive	28 (93.3)	16 (53.3)	13.32^a	.00**
High	01 (3.3)	02 (6.7)		
Partial	01 (3.3)	11 (36.7)		
Token	00 (.0)	01 (3.3)		
IBS (T_2)				
Exclusive	25 (83.3)	11 (36.7)	15.95 ^{a}	.00***
High	03 (10.0)	04 (13.3)		
Partial	02 (6.7)	14 (46.7)		
Formula	00 (.0)	01 (3.3)		

Note. PBP = perinatal breastfeeding program; T_1 = discharge data collection; ***p* < .01. ****p* < .001.

T_2 = one-month postpartum data collection; ^{a}Fisher's exact tests were used for cell sizes < 5.

At discharge, 93.3% of the mothers in the experimental group and 53.3% in the control group were exclusively breastfeeding. At one month postpartum, 83.3% of the mothers in the experimental group and 36.7% in the control group were still exclusively breastfeeding. These differences were statistically significant ($x^2 = 13.32$, $p < .01$ at T_1; $x^2 = 15.95$, $p < .001$ at T_2).

DISCUSSION

This study provides initial evidence to support the implementation of mother-infant non-separation practices (that is, SSC) in improving breastfeeding outcomes in Taiwan. In Taiwan, all baby-friendly hospitals provide very early KMC, with the first mother-infant dyad contact following the completion of initial infant care, and most infants have their first breastfeeding within four hours of birth. Early maternal-newborn contact not only improves the birth experience[42] but also enhances breastfeeding outcomes.[13] The approach used in this study was different from the routine care, in that in BKMC, the mother-infant SSC began in the first minutes after birth and lasted until the first breastfeed. It was also different from the approaches used in other studies as it emphasised innate mutual self-regulation between the mother and infant via non-separation while the dyad remained hospitalised. This study encouraged the mothers to practice not only continuous 24-hour rooming-in, but also ongoing KMC with breastfeeding on cue. While as a single intervention prenatal breastfeeding education may be an effective approach,.[43] the PBP is a hospital-based multi-strategy intervention to promote ongoing breastfeeding outcomes post-partum. The experimental group of mothers in this study had a greater incidence of exclusive breastfeeding compared to the control group, which is consistent with the prior research.[28, 39] In this study, 83.3% of the experimental group and 36.7% of the control group mothers were exclusively breastfeeding at one month post-birth. In comparison, in Kupratakul et al.'s RCT study, 77.5% of the experimental group of mothers (n = 40) and 52.6% of control group of mothers (n = 40) were exclusively breastfeeding at one month post-birth.[39] Kupratakul's study was conducted in Bangkok, Thailand, using the knowledge-sharing practices with empowerment strategies (KSPES) program for prenatal education and postpartum support strategies to improve the rates of exclusive breastfeeding. The PBP used in the current study is different from the KSPES program, as the PBP not only included prenatal education and postpartum support, but also BKMC at first breastfeed and ongoing KMC with breastfeeding on cue.

These findings suggest that the additional prenatal education and postpartum support strategies used in the present study may help improve the rates of exclusive breastfeeding at one month postpartum. Most of the infants in this study were assisted in latching on to the breast correctly by the researcher. Only two of the infants were able to crawl up to the breast, self-latch, and suckle. As such, BKMC until the first breastfeeding was completed had a significant impact on the breastfeeding outcomes. This study on BKMC with first feeding was similar to that of Widstrom's with regard to early optimal self-regulation, and this phenomenon impacts the exclusive breastfeeding rate.[28]

The most influential factors are maternal breastfeeding intention and knowledge, as well as social support from family members or health professionals.[19] Breastfeeding should be promoted through perinatal comprehensive clinical and social support starting in the prenatal period and continuing through the intrapartum, postpartum, and follow-up periods. This suggests that efforts should be made in PBPs to help women obtain positive initial breastfeeding experiences to increase the rate of exclusive breastfeeding.

LIMITATIONS

This study had some limitations. The telephone follow-ups were similar between the two groups because the researcher found it difficult to refuse to answer breastfeeding questions from those in the control group. Therefore, the control group were, at least partially, supported for breastfeeding after going home. This could have affected research outcomes. Many participants were not familiar with KMC and so refused to participate. As such, generalisation of the results of this study to the general population should be done with caution, as KMC may have varying acceptability among different populations. Ongoing KMC was hindered by the family members, especially mothers-in-law. The mothers-in-law were worried that the mother or infant would catch a cold while doing KMC. Traditional Taiwanese practices after birth (for the first month) include the mother staying at home, being taken care of by others, eating a special diet, and obeying traditional rituals. The introduction of KMC, with which mothers-in-law are generally not familiar, could have been facilitated in the study by including them in prenatal education, as will be done in future studies. Multicentre studies should be performed to ensure increased sample sizes and, potentially, more representative samples of the target population, as this could increase the generalisability of future studies. Further research is needed to measure duration of exclusive breastfeeding up to six months post-birth among different populations, to determine if duration is consistent with WHO recommendations. Moreover, other outcomes such as the mother's satisfaction with the experience could be measured in future studies.

CONCLUSION

The findings provide early evidence to support the implementation of a PBP in improving the exclusive breastfeeding rate. The results of this study supported the BFHI launched by the WHO and UNICEF to Step 4: "Place babies in skin-to-skin contact with their mothers immediately following birth for at least an hour. Encourage mothers to recognise when their babies are ready to breastfeed and offer help if needed"[1(P34)] The results also supported the Academy of Breastfeeding Medicine Committee guidelines that "the healthy infant can be given directly to the mother for skin-to-skin contact until the first feeding is accomplished," and that "the initial physical assessment [should be] performed as the infant is placed with the mother". Future studies may conduct group PBE classes, which are more feasible and would decrease the nursing workload. In summary, the promotion of successful exclusive breastfeeding requires multi-strategy nursing interventions to overcome individual differences. The findings from this study provide preliminary evidence to support the implementation of mother-infant non-separation practices in improving breastfeeding outcomes.

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REVIEWS & DISCUSSION PAPERS

Prehospital interventions to prevent hypothermia in trauma patients: a scoping review

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ABSTRACT

Objective: The aim of this review is to map the prehospital rewarming measures used to prevent hypothermia among trauma victims.

Background: Hypothermia is responsible for an increase of the mortality and morbidity in trauma victims and its recognition and early treatment are crucial for the victim's haemodynamic stabilisation. Prehospital interventions are particularly important, especially those that target bleeding control, haemodynamic stability, and safe body temperature. Registered nurses may be pivotal to prevention and minimisation of the dangerous effects of hypothermia.

Study design and methods: A scoping review was used to identify articles from several online databases from 2010 to 2018. Studies in English, Spanish, and Portuguese were included. Two reviewers performed data extractions independently.

Results: Seven studies were considered eligible for this review: two quantitative research studies, one qualitative research study, and four literature reviews. Rewarming measures can be divided into two main groups: passive rewarming, which includes the use of blankets, positioning the response unit to act as a windbreak, removing the patients' wet clothes, drying the patient's body, and increasing the ambient temperature; and active rewarming which includes the use of heating pads, heated oxygen,

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warmed intravenous fluids, peritoneal irrigation, arteriovenous rewarming, and haemodialysis.

Discussion: Active measures reported by the included studies were always used as a complement to the passive measures. Active rewarming produced an increase in core temperature, and passive rewarming was responsible for intrinsic heat-generating mechanisms that will counteract heat loss.

Patients receiving passive warming in addition to active warming measures presented a statistically significant increase in body core temperature as well as an improvement in the discomfort caused by cold.

Conclusion: Rewarming measures seem to be essential for the prevention of hypothermia and to minimise the discomfort felt by the patient. In many countries registered nurses can play important roles in the prehospital context of trauma victim's assistance. Greater understanding of these roles is necessary to the development of better practices.

Implications for research, policy, and practice: The findings of this study highlight that passive and active rewarming measures must be implemented as soon as possible for trauma victims. Many measures are incorporated in trauma relief protocols; however, the lack of consensus on their inclusion results in an undervaluation of this issue, which inevitably compromises the safety and wellbeing of trauma victims. In practice, supportive frameworks and an intervention plan (based on heat loss reduction and heat supply) are required to ensure that first responders including registered nurses are able to prevent and treat hypothermia.

What is already known about the topic?

- Hypothermia is a serious threat to trauma victims in the prehospital context and can induce a "vicious cycle" of hypothermia, acidosis, and coagulopathy.
- To prevent or control the decline of a trauma patient with hypothermia, treatment of hypothermia should ideally begin in the prehospital context.
- Prehospital nurses must be able to develop advanced practice competence to function effectively in their role.

What this paper adds:

- This paper mapped out what measures can be used by prehospital healthcare workers including nurses.
- This study identified all the rewarming measures that may improve the health and wellbeing of patients with hypothermia.
- The combined use of active and passive measures seems to provide better outcomes in the prevention and treatment of hypothermia in trauma victims.

Key words: Multiple trauma; emergency care; nursing; body temperature regulation; warming.

BACKGROUND

The metabolic imbalance that results from trauma, and the subsequent decrease in oxygen perfusion, is responsible for physiological exhaustion that will take the patient into a “vicious cycle” called Lethal Triad: metabolic acidosis, hypothermia, and coagulopathy.[1] Hypothermia in trauma victims is clinically important when the body temperature drops below 35°C for more than four hours. Hypothermia can be classified as being mild (35–32°C), moderate (32–28°C) and severe (<28°C). It results from blood loss, patient exposure to the surrounding environment, cold fluids administration and loss of thermoregulatory capacity, common in intoxicated or neurologically damaged victims, and is responsible for ventricular arrhythmias, afterload decrease, increased peripheral vascular resistance, and deviation of the oxygen dissociation curve to the left.[2,3]

Hypothermia affects more than 60% of severe trauma victims and is an independent mortality risk factor. In addition to its implications for the cardiovascular, renal and neurological systems, hypothermia also plays a major role aggravating coagulopathy, hence increasing mortality and morbidity.[4] The risk factors for hypothermia are low Glasgow Coma Scale, low air temperature, and a wet patient.[5] Recognition and early treatment of hypothermia are crucial for the victim’s haemodynamic stabilisation.

Prehospital interventions are particularly important, especially the ones promoting bleeding control, haemodynamic stability and the patient’s rewarming.[6] Rewarming measures should be implemented in prehospital care and involve the use of passive measures – intrinsic heat-generating mechanisms to counteract heat loss – and active rewarming measures.[4] Since in many countries such as Sweden, Portugal, Finland, Belgium, England, Wales, Spain, and The Netherlands, emergency medical services include nurses in prehospital care, the knowledge and the ability to implement these measures are essential for nurses. These nurses have proven to be important for victims’ illness and injury assessment, treatment, and in steering the patient to an optimal level of care.[7]

Literature provides little and unclear knowledge about the type of rewarming measures that must be implemented in prehospital settings in order to prevent hypothermia in trauma victims. There is limited evidence on how to implement rewarming interventions, and, in this context, there is a need to perceive not only the kind of interventions that ought to be used, but also if we should use active rewarming measures rather than passive ones, and the situations in which they should be applied. Hypothermia treatment should ideally begin in the prehospital context, with hypothermia wraps, battery-powered inline fluid warmers,[6] duvets, plastic "bubble wrap", and cotton blankets.[8] However, there is no consensus about the best way to prevent and treat hypothermia in a prehospital setting.[8]

A scoping review was conducted to systematically map the research carried out on prehospital rewarming measures crucial to prevent hypothermia among trauma victims and to identify the existing knowledge gaps. The following research questions were formulated: Which are the prehospital rewarming measures used to prevent hypothermia in adult trauma victims? What are the characteristics of these rewarming measures? In what contexts/types of trauma have these measures been implemented? In addition, the purpose of this scoping review is to summarise the research findings and identify the existing gaps in the research.

METHOD

The review was conducted according to the methodology for Joanna Briggs Institute scoping reviews,[9] and prepared using the PRISMA Extension for Scoping Reviews (PRISMA-ScR) (see Appendix A, Supplementary Data).[10] The review protocol was established, followed and was previously published.[11]

The search strategy aimed at finding both published and unpublished papers with a three-step search strategy. An initial search, limited to PubMed and CINAHL, identified the articles written on this topic. It was followed by the analysis of the words contained in the titles and abstracts, and of the index terms used to describe those articles. A second search using all previously identified keywords and index terms was carried out in the selected databases: CINAHL Plus with Full Text, PubMed, Cochrane Central Register of Controlled Trials, Scopus, PsycINFO, The JBI Connect+ and Cochrane Database of Systematic Reviews. The search for unpublished studies included: RCAAP – Repositório Científico de Acesso Aberto de Portugal; OpenGrey – System for Information on Grey Literature in Europe. Finally, the reference lists of all the articles identified were analysed. The search strategy for PubMed is presented in Table 1.

TABLE 1: SEARCH STRATEGY FOR PUBMED

#1	((((((fracture[Title/Abstract]) OR Dislocation[Title/Abstract]) OR Dislocation[MeSH Terms]) OR Trauma[MeSH Terms]) OR (Wounds and Injuries[MeSH Terms])) OR Hypothermia[MeSH Terms]) OR Shivering[MeSH Terms]
#2	(((((((Thermal comfort[Title/Abstract]) OR Resistive Heating[Title/Abstract]) OR Management[Title/Abstract]) OR rewarm*[Title/Abstract]) OR passive warming OR[Title/Abstract]) OR active warming[Title/Abstract]) OR Rewarming [MeSH Terms]) OR Body temperature regulation[MeSH Terms]
#3	((((((((((((pre-hospital[Title/Abstract]) OR prehospital[Title/Abstract]) OR pre hospital[Title/Abstract]) OR Emergicenters [Title/Abstract]) OR emergency care[Title/Abstract]) OR Emergenc*[Title/Abstract]) OR Emergency Health Services[Title/Abstract]) OR Emergency Service, Hospital[MeSH Terms]) OR Critical Care (MeSH 2018)[MeSH Terms]) OR Emergency Treatment[MeSH Terms]) OR first aid[MeSH Terms]) OR emergency responders[MeSH Terms]) OR Accident[MeSH Terms]
#4	#1 AND #2 AND #3
#5	#4 NOT child*

Published and unpublished studies in English, Portuguese and Spanish language, from 01/01/2008 to 31/12/2018 that described all passive and active prehospital rewarming interventions used to prevent hypothermia among trauma patients were considered for inclusion.

Following the search, all identified citations were uploaded into Endnote V7.7.1 (Clarivate Analytics, PA, USA) and the duplicates removed. In order to assess their eligibility, titles and abstracts were screened by two independent reviewers (MM and FM). The full papers were then examined based on the following inclusion criteria:

PARTICIPANTS

This scoping review considered all studies that focus on adult patients (aged 18 and over) who were victims of trauma. Trauma patients are defined as patients with (suspected) injuries from mechanisms of blunt or penetrating forces, falls, explosions, heat, cold or chemical toxicants.[12]

CONCEPT

This scoping review considered all rewarming measures implemented and evaluated by health professionals (nurses, physicians and paramedics) in victims of trauma aiming to prevent or treat hypothermia. For this review, rewarming measures included all kinds of treatment performed as emergency care, with the following characteristics: mechanism of action, duration, dose and frequency.

CONTEXT

Emergency care provided in prehospital settings was considered for inclusion. Care within non-emergency and hospital settings was not eligible for inclusion.

TYPE OF STUDIES

This scoping review considered all types of studies, namely systematic reviews, quantitative, qualitative and mixed-method studies in order to consider different aspects of the rewarming interventions.

Data were extracted by two independent reviewers (MM and TA) from the selected studies using a form that was developed specifically for this review to collect relevant data from each paper and include specific details about the populations, concept, context and the study methods. This form was previously tested by the reviewers before its use (Appendix B, Supplementary Data).

Any disagreement between the reviewers that may have come up during any of the previous steps was resolved with the inclusion of a third reviewer.

The findings were tabulated and accompanied by a narrative synthesis to address the review objective.

RESULTS

Once duplicates were removed, a total of 1,195 citations were identified from searches in databases. Based on their titles and abstracts, 1,135 were excluded. Sixty full-text articles were retrieved and assessed for eligibility. Of these, 53 were excluded for the following reasons: 27 did not study the main topic, 17 due to intervention, two included children or adolescents and four due to language. Three studies were excluded, as the full text references were unable to be retrieved. The remaining seven studies were considered eligible and included two quantitative research studies, one qualitative research study and four literature reviews. Of the quantitative research studies, one was a randomised control trial and the other a case report. All studies using a qualitative approach were conducted using interviews. Included studies were conducted across six different countries: two were conducted in Sweden,[13, 14] and the remaining undertaken in UK,[15] South Africa,[16] Norway,[17] USA[18] and Canada[4].

The study selection is presented in Figure 1.

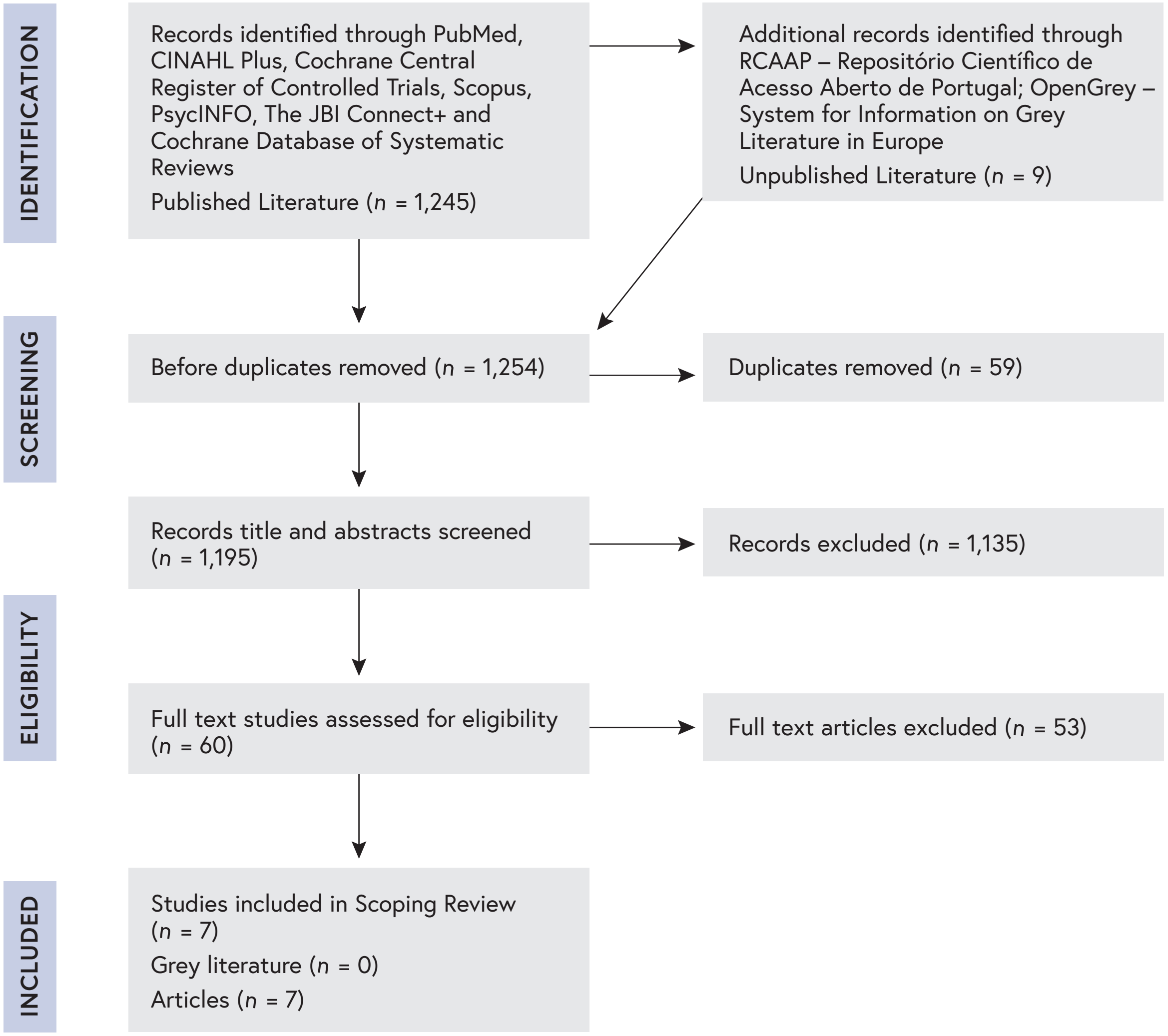

FIGURE 1: FLOWCHART OF THE PROCESS OF STUDY SELECTION

The details and specificities of the included studies are presented in Table 2.

TABLE 2: DETAILS OF INCLUDED STUDIES

Authors	Methods	Participants characteristics	Rewarming measures	Conclusions
Alex and colleagues (2013)[13]	Interview.	20 adults injured in the mountains with several fractures. Initial body core temperatures: 32.6°C to 37.7°C. Outside temperature: 4°C to 14°C. Wind: windless to 10m/s.	Seven victims (mean age of 39) were treated with passive warming (blankets). 13 victims (mean age of 55) were treated with passive warming and active heating pads (42 · 28 cm).	Passive heat applied from beneath led to a higher heat loss reduction compared to that applied over the patients' chest. The heating pads were described as warm, comfortable and stopped shivering. Active heat needed to be applied both from underneath and on the victim's chest. Turning up the ambient temperature inside the ambulance unit is not effective.
Owen and Castle (2008)[16]	Case reports.	Two patients. An elderly man had been involved in a car accident with an abdominal gunshot wound and a male pedestrian involved in a hit-and-run accident with several fractures.	Minimised further exposure by positioning the response unit to act as a windbreak; Blankets with applied heating pads and warmed intravenous (IV) fluids.	Measures have been effectively increased tympanic temperature (34.0°C to 35.3°C) after 30 min.
Perlman and colleagues (2016)[4]	Review.	n/a	Remove wet clothing; Avoid cold surfaces; Heating blankets (electric or hot air); Heated intravenous fluids; Extracorporeal heating measures (dialysis, peritoneal lavage, continuous arteriovenous heating - CAVR); Humidified oxygen.	The early use of warming blankets and the removal of wet clothing are recommended, followed by aggressive rewarming on arrival at the hospital if the patient's injuries require damage control therapy.
Gill and Cox (2008)[18]	Review.	n/a	Airway rewarming; Blankets (aluminium, connective and fluid circulation); Radiant warmer; Body Cavity Lavage; IV fluids, CAVR.	Central (core) rewarming is by far the most efficient way to rewarm a patient. Normothermia is obtained more quickly through CAVR. Airway rewarming and aluminium blanket seem to be the most ineffective warming methods.
Giannoudi and Harwood (2016)[15]	Review.	n/a	Passive external rewarming: warm blankets or increasing ambient temperature. Active external rewarming: forced air-warming devices and other heaters. Active internal core rewarming: warming fluids and heated oxygen. Warmed bladder and peritoneal irrigation, arteriovenous rewarming and even haemodialysis.	Extracorporeal rewarming techniques are the most efficient, increasing body temperature at a rate of 4–5 °C per hour (compared to only 2 °C by the other aforementioned techniques).
Lundgren and colleagues (2011)[14]	RCT.	48 blunt trauma patients with a mean coded Revised Trauma Score of 7.83.	22 patients receive passive warming (blankets) and 26 patients receive passive warming (blankets + active warming: chemical heating pad reaching about 50°C within two minutes, applied across the anterior upper torso).	Additional active warming significantly improves thermal comfort even further and might also reduce the cold-induced stress response.
Kornhall and Martens-Nielsen (2016)[17]	Review.	n/a	Chemical or electrical heating pads and blankets, applied on the axillae, chest and back. Bolus administration of fluids warmed to 40–42°C. Insulating materials, such as sleeping bags, blankets or bubble wrap. Airtight vapour barrier immediately outside the wet clothing. Extracorporeal circulatory support.	Bolus administration of fluids warmed to 40–42°C prevents further core body temperature. Use of ECC rewarming in hypothermic avalanche victims in cardiac arrest or in pure hypothermic cardiac arrest is associated with extremely poor outcomes.

Alex and colleagues sought to verify if active heating measures were more effective than the application of passive measures alone.[13] The two groups were offered the same model of passive rewarming measures (blankets), and, in one of them, as a supplement, active rewarming with heat pads was also offered. Regarding the passive measures, the two groups reported that their application protected them against the cold; however, the need for a greater supply of heat was also evident. The group that received active rewarming in addition to blankets claimed they felt more comfortable and warmer. In addition, passive measures applied to the back and chest of the victim offered greater comfort and better results in reducing heat loss compared to when they were applied only on the victim's upper torso.

Shivering must be avoided since it increases oxygen demand by up to about 400–500% of the basal requirement and,[19] in some studies, it was possible to verify that it only stopped after the heating pad was applied.[13] Space blankets only led to a limited rise in temperature, on the other hand, heating pads resulted in a body temperature rise by a mean of 0.74°C over a 30-minute period.[16]

Despite the increase in body temperature, decrease in cold discomfort, improvement of vital signs and blood pressure, and stabilisation of the patient's heart and respiratory rates; Lundgren and colleagues found that passive heating with blankets is less effective when used alone than when used in addition to active measures.[14] The use of passive measures combined with active measures showed better results in heating and providing comfort when applied to the victim's back and upper chest. Shivering was corrected only after the application of the heating pads. In patients that were group assigned only to passive warming, initial ear canal mean temperature was 35.1°C, and at the second measurement, it had increased to 36.0°C. In the group assigned to active warming, the initial temperature recording was 35.6°C and the second was 36.4°C. In the group assigned to passive and active warming, all 26 patients showed a decrease in the cold discomfort index, whereas in the group assigned for passive warming, only 15 out of the 22 patients presented a decrease in the cold discomfort scale.

In Owen and Castle's opinion,[16] the first rewarming passive measure is the positioning of a response unit to minimise further exposure. According to these authors, the unit will act as a windbreak.

Preventing further heat loss should be the first concern when approaching the victims, so the removal of wet clothes and the protection of areas such as the victim's head and neck,[4,17] so often neglected, should receive rescuers' special attention. It should be noted that wet clothing removal in a very cold and wet environment will further expose the victim to heat loss by evaporation, a situation that may be minimised by adding an airtight vapour barrier immediately outside the wet clothing.[17]

Increasing ambient temperature does not provide a relevant consensus.[13–15] For Alex and colleagues rising temperature inside the ambulance did not seem to be as efficient as the heating pads,[13] however, increasing ambient temperature may be used as a complement to the initial rewarming procedures.[14,15]

Heated intravenous fluids administration continues to raise many questions regarding its effectiveness even though it is integrated within current protocols.[16] In order to reach acceptable body temperature in people with hypothermia, heated fluids total volume would have to exceed 10 litres, a value that will compromise haemodynamic stability.[18,20] It should be noted that these fluids do not contribute themselves to the victim's rewarming,[18] and they should be previously heated to avoid hypothermia worsening.[15]

Heated oxygen, peritoneal irrigation, arteriovenous rewarming and even haemodialysis are potential active internal rewarming measures,[15] however, there is no evidence of their applicability and efficacy in prehospital settings.

The results also found that rewarming measures are offered regardless of the type of trauma, the type of injuries found and the victims' prognosis; and since hypothermia is responsible for increased pain, anxiety and fear of dying,[13] it seems that the prompt implementation of rewarming measures is a priority not only to achieve haemodynamic stabilisation[14,16,17] but also to increase the victims' comfort.[13,14]

DISCUSSION

Implementing effective rewarming measures for trauma victims in order to prevent and/or treat hypothermia has been an increasing concern for prehospital teams. Thus, it is important to study the measures that should be implemented in prehospital settings and the contexts in which they should be applied. This review aimed to map the existing evidence and to define new lines of research that will support prehospital care providers in assessing the effectiveness of existing passive and active measures.

For the purpose of rewarming, several measures are available. However, there is few or poor evidence related to their applicability, the context of their applicability and which measures should be implemented: passive, active or both.[5] This work describes existing knowledge covering the different prehospital passive and active rewarming measures used in trauma victims. The results focused mainly on the increase in the core temperature and/or the decrease in cold discomfort.[21]

It is already known that rewarming measures are determinant not only for hypothermia prevention, but also to minimise the discomfort felt by the patient. This discomfort is mainly felt due to the cold being greater than the pain that resulted from the traumatic event.[13] The thermal sensation that results from the cold was reported by many trauma victims as being more uncomfortable than the pain itself.[22] Furthermore, hypothermia is responsible for a large percentage of mortality among trauma patients when temperature is below 32°C and remains poorly handled.[4]

Different mechanisms of heat transfer are responsible for hypothermia: radiation, conduction, convection and evaporation. It is possible to find suitable measures to counteract each of them. To fight radiation one should use a warming blanket, increase ambient temperature, use radiant heaters and avoid unnecessary anaesthesia; to fight conduction, the removal of wet clothing is recommended and nurses should prevent the victim from being in contact with cold surfaces; for convection, nurses should use warming blankets; and for evaporation, one should use humidified gases.[4,23]

Overall, the rewarming measures can be divided into two main groups: passive rewarming that includes the use of blankets, positioning the response unit to act as a windbreak, removing wet clothes and drying the victim's body, and increasing ambient temperature; and active rewarming that uses heating pads, heated oxygen, warmed intravenous fluids, peritoneal irrigation, arteriovenous rewarming and haemodialysis as a last resort.[19,27]

All these measures are relevant and have advantages/disadvantages, as well as specific conditions to be applied. For example, removing the victim's wet clothing is an important passive rewarming measure,[4] however, and due to existing environmental conditions, it should be understood that the removal of wet clothing can increase heat loss. In wet and very cold environments, it is suggested not to remove clothing but to place an airtight vapor barrier immediately outside the wet clothing.[17]

Regarding the active warming measures, all included studies used them as complementary measures to the passive ones. Active rewarming produced an increase in core temperature,[24] and passive rewarming was responsible for intrinsic heat-generating mechanisms that will counteract heat loss.[4] These measures, when combined, induce a statistically significant increase of the body core temperature as well as an improvement in cold discomfort.[14]

LIMITATIONS

Our results should be interpreted while taking into account some limitations. First, although we used a rigorous and robust method, the results of this review were intended only to map measures and not to evaluate their effectiveness. On the other hand, this review allows future effectiveness studies to be developed from all the evidence gathered. Second, we are aware that prehospital practices are not always performed by nurses. However, in this case, other clinicians can also obtain relevant information that they can integrate into their practice. At last, the studies included in this review were all developed in extremely cold environments, and in that sense we wondered whether the effectiveness or perception that prehospital teams had of the problem would be the same in "milder" environments; in other words, it remains unanswered whether or not the temperature control is a real concern in prehospital activity during the treatment of trauma victims. Naturally this seems to be a minor problem in certain environments. Hypothermia does not arise exclusively from cold environments, it is a consequence of the pathophysiology of the traumatic event, so hypothermia investigation is necessary for every trauma victim regardless of the ambient temperature.

Based on these findings and analysing the role of nursing in this specific area, it is essential that prehospital care providers develop an intervention plan/operation protocol for hypothermia prevention. This protocol should be based on two fundamental premises: heat loss reduction and heat supply. The first is possible through the implementation of passive rewarming measures and the second through the implementation of active rewarming ones. Even so, these actions should be methodical and not delay the administering of other equally important procedures to the trauma victim, this may include, airway maintenance with cervical spine protection, breathing and ventilation management, circulation assessment and management with haemorrhage control, brief neurological examination and exposure/environmental control.[25]

CONCLUSION

Hypothermia, in addition of being an important mortality risk factor among trauma victims, is an element that plays an extraordinarily relevant role in these patients' complaints and discomfort.

This review's findings highlight a set of rewarming measures (active and passive) that can be integrated into the practice of prehospital RNs. The combined use of active and passive measures seems to provide better outcomes.

An intervention plan/operation protocol for hypothermia prevention should be developed by prehospital care providers and should integrate two main premises: heat loss reduction and heat supply. Implementation of such a protocol is important in supporting the safety and improvement of trauma patient outcomes.

Future studies should aim at obtaining these different effectiveness measures and understanding which ones are best suited for prehospital settings. In addition, they must be able to respond to two different circumstances: hypothermia prevention in trauma victims and hypothermia treatment in those whose central temperature value is already lower than recommended.

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LETTER TO THE EDITORS

The role of telehealth in supporting mothers and children during the COVID-19 pandemic

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The COVID-19 (from 'severe acute respiratory syndrome coronavirus 2') outbreak has drastically changed from epidemic to pandemic. This has led the New South Wales (NSW) Government to decrease or suspend some health services in an effort to contain the spread of the virus. The government has taken various actions to protect staff, patients, and the community against any potential transmission of COVID-19.

Child and Family Health Nurse (CFHN) services provide support, education, and information on child development, feeding and nutrition, sleep and settling techniques, and maternal (parental) emotional wellbeing to families of children aged zero to five years. Traditionally, the services are delivered face-to-face in home or community health centres. However, due to the pandemic, current services have been reduced to contain and prevent the spread of COVID-19.

Over the past three years, Sydney Local Health District Health Promotion Unit and Community Health Services have been conducting a world first three-arm randomised controlled trial testing the effectiveness of Communicating Healthy Beginnings Advice by Telephone (CHAT)[1,2] to replicate the effects of a successful home-based Healthy Beginnings early obesity prevention program.[3,4] Since February 2017, the CHAT study has been conducted with a total of 1,155 women recruited in the third trimester of pregnancy in NSW, Australia. The CHAT study was delivered by CFHNs via telephone or text messaging for the purpose of examining the impacts of both telephone and SMS support on a range of infants' health behaviours in the first years of life. The study findings have demonstrated positive effects on healthy infant feeding practices, reduced screen time, and co-benefits on maternal emotional wellbeing.[5] In addition, the findings identified that mothers reported high satisfaction with the telephone calls and the information support delivered as part of the broader program.

This CHAT tele-support service has illustrated the potential to engage hard to reach populations for example, socially isolated women living in regional areas, women of low socioeconomic status, women with English as a second language and women with mental health issues. The service also reached women across NSW from urban to regional, and those who temporarily moved interstate and abroad. It offered effective nursing care and support to mothers and babies within their own home. The CHAT program was delivered at opportunistic moments to address key milestones of the child's growth from third trimester until two years of age. It offered convenience to the mother as it was delivered at a time when it suited her and her child. It was not reliant on availability of transportation, location or weather conditions. Flexibility was offered to continue supporting women who returned to work, and offered after hours or weekend telephone calls.

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As the COVID-19 outbreak spreads, the need for mothers and their children to home isolate may become greater on a global scale. The findings of this study have the potential to be implemented across other settings in various countries. The high rate of telephone ownership globally regardless of socio demographic characteristics may provide access to evidence-based telehealth nursing care.

The role of telehealth in supporting the community has become increasingly important during the COVID-19 pandemic as we found coincidently when delivering the Healthy Beginnings program over the phone. We found that study participants were more vulnerable to having potential anxiety and depression due to social isolation and misinformation about the virus. The telephone support calls required significantly more time to deal with complicated issues. The need for telehealth support has become paramount during the current pandemic situation. It is evident that such telephone support services could be an alternate model to face-to-face service delivery during infectious disease outbreaks that impact the feasibility of traditional approaches. There is a compelling need to integrate telehealth into existing health services.

The CHAT project was part of the Translational Research Grants Scheme, and the evidence from the study can be used to advocate to leaders working within relevant health services and policy makers on the importance of delivering telehealth. It should be emphasised that this process may involve reorienting health services to meet varying community needs. The benefits of telehealth nursing care include flexibility, nurse-initiated appointment, rapport building with participants, reaching out to socially isolated and culturally and linguistically diverse populations, and allowing more time for discussion around mother and child health issues. On the other hand, the face-to-face nursing care can be more focused on clinical health surveillance and physical health checks.

Telehealth could well be the remedy to the current crisis we face in delivering effective care while not being able to offer face-to-face health services. We would urge sustainable action to be taken to integrate telehealth into existing health services in Australia and abroad.

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