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Factors influencing the dissemination of healthy eating and physical activity practices in Australian childcare services: a qualitative study

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Abstract

Although healthy eating (HE) and physical activity (PA) practices in the Early Childhood Education and Care (ECEC) setting can improve children's health outcomes, their implementation remains inconsistent. Dissemination of evidence-based practices is a prerequisite to implementation; however, researchers have yet to examine the factors influencing successful dissemination in the ECEC setting. Therefore, this study aimed to explore the barriers and facilitators influencing the dissemination of evidence-based HE and PA practices among ECEC services. We conducted 21 semi-structured interviews with ECEC service staff and analysed the interviews using an abductive thematic analysis approach. Facilitators of the dissemination of HE and PA practices included receiving information from credible sources, such as regulatory agencies, government-run programs, and non-profit organizations. Other facilitators included simple content and the adaptation and relevance of practices to diverse audiences, while barriers included information overload and a lack of time to access information. Preferred communication channels included printed materials, emails, and face-to-face interactions. This study highlights critical factors influencing the dissemination of evidence-based HE and PA practices in ECEC, and provides valuable insights into ECEC staff dissemination preferences, with the goal of improving implementation.

Introduction

Early Childhood Education and Care (ECEC) settings, including preschools, kindergartens, long day care, and nurseries, are key settings for promoting children's health development. In Australia, most children attend some form of ECEC, making this a unique opportunity to establish healthy behaviours in childhood [1] and help prevent chronic disease during adulthood [2]. Recognizing the importance of this setting for health promotion, the World Health Organization recommended implementing evidence-based healthy eating (HE) and physical activity (PA) practices within ECEC services in 2012 [3]. In fact, a review found 38 guidelines from six high-income

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countries that recommend the implementation of HE and/or PA policies and practices in ECEC settings [4]. These are consistent with the Australian National Quality Framework, including the National Quality Standards which emphasize children's health, well-being, and healthy lifestyles within ECEC settings [5, 6]. Since the release of this recommendation, substantial evidence has demonstrated positive effects of such practices within the ECEC setting on children's health outcomes [7–10]. For example, a 2023 Cochrane review synthesizing 52 randomized controlled trials (RCTs) found that ECEC-based HE practices may improve children's diet quality [10]. Similarly, a recent meta-analysis of 53 RCTs, suggests that PA practices significantly improved children's PA levels and fundamental movement skills [11].

Despite strong evidence and policy support, the implementation of HE and PA practices in the ECEC setting remains inconsistent [12, 13]. ECEC educators play an essential role in implementing these practices; however, evidence shows that they experience barriers such as competing priorities, limited resources, and insufficient training opportunities to implement these practices [14, 15]. As a result, educators require access to evidence-based practices that are relevant and tailored to the ECEC context. Ensuring that such information reaches educators is therefore critical to supporting implementation.

Knowledge translation refers to the process of synthesizing, disseminating, exchanging, and implementing knowledge to improve health outcomes [16]. Dissemination is a key component of the knowledge translation process [17] and is essential for the successful implementation of evidence-based practices. Dissemination is defined as 'an active approach of spreading evidence-based interventions to the target audience via determined channels using planned strategies' [18]. Effective dissemination aims to reduce the evidence-practice gap by increasing awareness, accessibility, and uptake of evidence-based practices among users [19]. Previous research suggests that understanding audience needs, contextual factors, and preferred dissemination channels is essential for dissemination success [17, 20].

Despite increasing attention to dissemination of evidence-based practices [21], limited research has examined factors influencing the dissemination of evidence-based HE and PA practices in the ECEC setting. An Australian study found that although ECEC staff, parents, and paediatricians recognized the need for PA guidelines, dissemination was hindered by low awareness of the guidelines and the use of overly technical language [22]. Collaboration between ECEC staff, parents, and children emerged as a facilitator. Such findings align with broader implementation science literature highlighting the importance of relationships between scientists, researchers, and end-users [20] as well as collaboration in supporting dissemination efforts [23]. However, the study was limited by its urban sample and the absence of a framework to categorize the identified barriers or facilitators [22]. Frameworks can assist identifying determinants of dissemination and informing the development of targeted dissemination strategies [24, 25]. Moreover, there appears to be a lack of studies examining barriers and facilitators to the dissemination of HE and PA practices in ECEC. Therefore, this study aimed to identify the perceived barriers and facilitators influencing dissemination of evidence based HE and PA practices in Australian ECEC from the perspective of the ECEC service staff. A secondary aim was to explore ECEC service staff preferences for the dissemination of such practices across different locations, socioeconomic status (SES), service types, and provider types.

Materials and methods

The research team conducted a qualitative study using semi-structured interviews with ECEC service staff and reported this study following the COnsolidated criteria for REporting Qualitative research (COREQ) [26]. This methodology was selected as it can appropriately answer exploratory research questions [27], such as those presented in this study and to capture the different perspectives of our target population. The University of Newcastle Ethics Committee (*UoN H-2023-0451)* approved the conduct of this study.

Participants

The research team invited potential participants from a national sample of ECEC services that had previously participated in a national survey assessing the factors to the implementation of HE and PA practices and had consented to be contacted again (HNEHREC *2019/ETHI12353, UoN H-2008-0343*). Services classified as preschools or long day care by the Australian Children's Education and Care Quality Authority (ACECQA) were eligible for inclusion. We excluded family day care, occasional care, caring solely for children with special needs, temporarily closed, outside-of-school-hours care or Independent and Catholic school services. We targeted ECEC service leaders such as directors, or nominated supervisors, as they are end-users of evidence-based HE and PA practices within the ECEC setting. We selected these roles as leadership support can influence the implementation of childhood obesity prevention practices in this setting [28] and they are considered to play a vital role in promoting HE and PA [29]. Guided by recommendations from the data saturation literature, we aimed to recruit a sample size of 20–30 participants, with ongoing assessment of data quality and adequacy conducted throughout the analysis process [30–32].

Recruitment

To maximize diversity and variation in experiences and perspectives, ECEC services were first stratified by SES and State/Territory. Then, services were randomly selected and invited to participate supporting variation across diverse contexts while reducing potential bias. Initially, 20 services were sent an email with the study invitation, including a flyer and a participant information statement using a secure, web-based software platform called Research Electronic Data Capture (REDCap) [33]. The email contained a link for staff to register their interest to participate in the study, requesting them to provide service and participant contact details (service name, participant name, best contact number, and email address), consent to participate, and a preferred time and date for the interview. Services that did not respond, received a reminder email 3 days later or were contacted via telephone within a week by a member of the research team to invite participation, answer any questions, obtain consent, and schedule an interview. Following the first round of interviews, additional services were recruited using the same process.

Data collection

In-depth one-to-one semi-structured interviews through telephone or computer were conducted by the lead author, audio- and/or video-recorded using the MS Teams platform and stored securely in a password-protected database. Semi-structured interviews allowed for consistency across participants to explore the research questions, while providing flexibility to probe participants for greater depth. If participants did not consent to be video-recorded, audio recording consent was sought. Interviews took place during March and April 2024 and lasted from 30 to 90 minutes.

Measures

Participant and service characteristics

The participant's role, years of experience in current position, and educational level were collected during the interview. Service location, service type (preschool or long day care), provider type (private for profit, private not-for-profit community managed, private not-for-profit other organizations, and State/Territory and Local Government managed), and SES were obtained from the publicly available ACECQA national register prior to the interview.

Barriers and facilitators to dissemination

The study explored factors (barriers and facilitators) perceived to influence the dissemination of evidence-based HE and PA policies and practices in the ECEC setting identified *via* systematic review and settings-based guidelines [4, 8, 10, 11]. Examples of HE practices include: 'staff sitting with children during meals', 'staff role-modelling healthy behaviours', and 'the service having a comprehensive nutrition policy'. Examples of PA practices include: 'providing educator training on PA', and 'engaging families in activities to increase child PA'.

The research team developed an interview guide that included the top eight most frequently identified dissemination determinant constructs from a dissemination scoping review (Supplementary File S1) [21]. These constructs were considered the *global themes* (Table 1). Questions were informed by previous studies [34–40], and were designed to explore the knowledge translation process [38] and identify stakeholders' perceptions [40] of the practices being disseminated [34], the participants' role in the dissemination process [35], and the context [41]. Additionally, questions sought to identify participants' preferences regarding the source, medium of communication and content (secondary aim) [42]. One researcher pilot-tested the interview guide with two ECEC service directors via MS Teams, and two practitioners in the ECEC setting reviewed it prior to the commencement of recruitment. One question was removed as the directors found it repetitive [42].

Analysis

Descriptive statistics were used to report service and participant characteristics. To determine services area SES, service postcodes were dichotomized into most disadvantaged and least disadvantaged according to the national median, based on the Australian Bureau of Statistics Socio-Economic Indexes For Areas (SEIFA) [43]. Service geographical location was dichotomized into major cities and inner/outer regional/remote Australia based on the ABS Australian Standard Geographical Standard [44].

Interviews were analysed using an abductive approach, applying thematic analysis to identify *organizing themes* while using constructs from existing frameworks obtained from Baumann's scoping review as a lens for interpretation. This method was chosen to explore the participants' perceived factors to better understand the dissemination of HE and PA policies and practices [45, 46].

First, one researcher (A.R.) cleaned and became familiarized with the data through the transcription of the recordings. Subsequently, one researcher (A.R.) coded six interviews focusing on each *global theme* at a time (i.e. determinant constructs in Table 1), during which the codebook was created. The codes in the codebook are the *basic themes* which emerged using an inductive approach. The second researcher (C.C.P.) familiarized himself with the interview transcripts and with the codebook and coded 20% of interviews. Both researchers (A.R., C.C.P.) then met three times to cross-check coding to review

Table 1 Dissemination determinant constructs adapted from the dissemination scoping review by Baumann and colleagues.

Determinant constructs (global themes)	Suggested definition	Application to HE/PA policies and practices in ECEC
Source of knowledge	The individual or unit that delivers the information.	Governments or non-for-profit organizations disseminating evidence-based information about HE/PA practices
Medium of communication	The means (form) by which the information is shared.	The channel of communication by which the information is disseminated and received (e.g. emails, webinars, etc.)
Content of communication	The content of the message sharing the information.	Preference of format (i.e. design, colour, graphs), type of content (i.e. testimonial, statistics, etc.) of information about HE/PA practices received by participants.
Audience	Person or group receiving the information.	ECEC staff receiving information about HE/PA practices
Salience of the innovation	The relevance of the innovation to the audience.	The perceived relevance of the ECEC service staff on HE/PA policies and practices.
Context	Settings in which communications are received, and potential adoption occurs.	How the context supports/does not support or affects the information about HE/PA practices to be received.
Interpersonal networks	Large umbrella term that includes the relationship between the audience members, its structure, and its quality.	Identifies networks in which they receive information about HE/PA practices
Users' perceived attitude towards the innovation	A more general concept than the salience of innovation, related to the audience's perception of the process of innovation development (research) and the receptivity of the innovation.	Beliefs that HE/PA practices influence children's health, awareness of the existence of practices.

and refine the codes and codebook (A.R., C.C.P.); and all interviews were then coded. Then, the pair of researchers met to consolidate the *basic themes*, renaming or merging similar basic themes to avoid redundancy. From the *basic themes*, *organizing themes* emerged inductively, which were listed within each *global theme* (Table 3). Lastly, to explore trends in the data and participants' characteristics, cross-tabulations of codes with service characteristics were performed. NVivo version 14 was used to support interpretation and coding of the dataset.

Researcher team and perspective

One researcher (A.R.), an Accredited Practicing Dietitian in Australia, health promotion officer, and PhD candidate, with more than 7 years of experience in childhood obesity prevention, conducted all interviews. No relationship was established between the interviewer and participants prior to data collection, reducing the likelihood that pre-existing relationships influenced participants' responses. A second researcher (C.C.P.) who holds a PhD in organizational behaviour and conducts research in the area of information seeking contributed to the analysis. Through data collection and analysis, these researchers reflected how their professional backgrounds, perspectives, and prior experiences may have influenced data collection, coding decisions, and interpretation of findings. They held regular discussions where they addressed differences in coding and theme development, to enhance reflexivity and analytical rigour.

The study is mostly aligned with a critical realist epistemological stance, which assumes that an objective reality exists while recognizing that individuals' experiences and perspectives are influenced by their contexts [47]. Consistent with this approach, we employed open coding to identify key concepts within the data, followed by thematic analysis to explore participants' perspectives and broader contextual factors that might influence them.

Findings

Twenty-one interviews were conducted (consent rate = 54%, refused to participate = 8, unreachable = 9, and

telephone disconnected = 1). Service and participant characteristics are presented in Table 2. Most participating services were long day care centres (86%, *n* = 18), from major cities in Australia (52%, *n* = 11) and from least disadvantaged SES areas (52%, *n* = 11). Nearly half of the participating services were in New South Wales (NSW) (47%, *n* = 10), and were private for-profit organizations (43%, *n* = 9). Eleven (52%) of the interviewees were directors and nine (43%) of the interviewees held a diploma.

Findings from the qualitative data are illustrated in seven global themes (presented in no particular order; Table 3): (i) source of knowledge, (ii) medium of communication, (iii) content of communication, (iv) audience, (v) salience of innovation, (vi) context, and (vii) interpersonal networks. No data was mapped to the construct 'users' perceived attitude towards the innovation' as participants did not express any specific attitudes towards HE and PA practices.

Global theme 1: source of knowledge

This theme pertains to the source or disseminator of the HE and PA policies and practices, that is, an organization or an individual who provides the practices to services and not the source that services themselves search for [21]. This theme also includes sources that are perceived as influential by the participants, meaning the disseminators that the participants will be more likely to pay attention to. The following facilitators were found: (i) regulatory agencies, (ii) government-run programs, and (iii) not for-profit organizations. There were three organizing themes considered as barriers: (i) head office filters information received, (ii) services do not receive HE and PA information, and (iii) private organizations.

Regulatory agencies, such as ACECQA or the Department of Education and Health, were cited as the most frequent sources of information given that services need to comply with their regulations and standards. They are also perceived as influential due to their credibility and the inclusion of logos or names enhance the trustworthiness of the information provided. A participant noted:

> '*Because they have the knowledge . . . because they're up to date with the latest research and all that kind of stuff. So, I would assume it would be them [the influential source]. We follow the standards, the government's standards and stuff for our practices.*' (Educational Leader, WA, LDC)

Government-run programs such as Smiles4miles (Victoria) and Munch & Move (NSW) and external non-for-profit organizations (e.g. Nutrition Australia, Nature Play) were often cited as sources of HE and PA information.

With regards to barriers, the broader ECEC organization plays a key role in filtering information and deciding what to communicate and disseminate. Furthermore, some participants reported that they do not receive HE and PA information from any sources and that they actively seek such information through Google, Australian Children Education and Care Quality Authority's (ACECQA) website, or the state government website. Lastly, participants cited that private organizations offer services such as PA, dance, or yoga programs. However, participants perceive the primary motivations of these organizations is profit-making or eligibility for government subsidies and are potentially misaligned with the best interests of children, and therefore they are perceived as a barrier. A participant explained their views regarding contracting an external company:

> '*. . . a private company that's just trying to make a dollar . . . you've got like those people that travel around to childcare centres and do . . . ball sports for half an hour every Tuesday afternoon . . . that's not what we're about . . . So, we would come at the angle of like giving the children the environment to be able to do that, not paying someone to come in and throw a ball for half an hour or so*.' (Director/owner, QLD, LDC)

Global theme 2: medium of communication

This theme represents the mediums of communication through which services prefer to receive the practices (facilitators) [21]. There were five facilitators: (i) printed materials, (ii) emails, (iii) face-to-face, (iv) videos/webinars, and (v) social media. Emails were also identified as a barrier.

Printed material was mentioned as an important medium of communication as it can be easily shared with other staff members and children's families, it can be placed where it is visible (e.g. walls, fridges, and staff room) and can always be accessed. Some participants prefer this medium as they see themselves as someone that needs to 'touch' the printed material and see it:

> *'Because I'm old school. . . . just because if it's important, I like to have it in my hand . . . we have trainees here too who are studying, and I think sometimes . . . they need information that they can go and search it because it's there.'* (Director/owner, NSW, LDC)

Emails were cited as a facilitator, more so than telephone calls, as they provide the participants (i.e. recipients) the opportunity to read them when they have the time to or they can send it to their staff, saving them time instead of talking about them. However, emails were also seen as a barrier to receive HE and PA information given that

Table 2 Service and interviewee characteristics.

	***n* (%)**
Service characteristics	
Long day care	18 (85.7)
Preschool	3 (14.3)
State/Territory	
New South Wales	10 (47.6)
Victoria	3 (14.3)
Queensland	3 (14.3)
Australian Capital Territory	1 (4.8)
South Australia	0
Western Australia	4 (19)
Tasmania	0
Northern Territory	0
Provider type	
Private for-profit	9 (42.9)
Private not-for-profit community managed	7 (33.3)
Private not-for-profit other organizations	3 (14.3)
State/Territory and Local Government managed	2 (9.5)
Socioeconomic status	
Most disadvantaged	10 (47.6)
Least disadvantaged	11 (52.4)
Remoteness	
Major cities	11 (52.4)
Inner/Outer/Remote areas	10 (47.6)
Participant characteristics	
Role	
Provider/Owner	1 (4.8)
Director	11 (52.4)
Nominated supervisor/Second in charge	1 (4.8)
Educational leader	3 (14.3)
Multiple roles	5 (23.8)
Years of experience in the industry (*mean*, standard deviation)	*21.8 (9.7)*
Years of experience in the role (*mean*, standard deviation)	*9.7 (9.0)*
Qualifications	
Master of education	2 (9.5)
Bachelor of education	8 (38.1)
Advanced diploma	2 (9.5)
Diploma	9 (42.9)
Certificate IV or III or equivalent	0

services are often inundated with emails and can lead them to feeling overwhelmed. Furthermore, they were viewed as too complex or are not personalized, finding the process of filtering and prioritizing emails as difficult and time-consuming.

Face-to-face contact and interactions were valued among participants, and they perceived that their colleagues also preferred this channel. Some participants recognized that they prefer to build rapport with the person communicating the practice, to attend a training to 'see' what is being taught to them rather than reading it and to have meetings with staff members.

Videos, webinars, and social media were also cited as facilitators to dissemination. Participants perceived these

Table 3 Findings from in-depth interviews: global, organizing themes and illustrations.

Global theme	Organizing theme		Illustration
	Facilitators	**Barriers**	
Source of knowledge	Regulatory agencies: most frequent sources and influential	–	• '*Because they have the knowledge . . . because they're up to date with the latest research and all that kind of stuff. So, I would assume it would be them [the influential source]. We follow the standards, the government's standards and stuff for our practices.*' (Educational Leader, WA, LDC) • '*I'm looking for . . . the thing along the bottom that says the Department of Health were involved . . . for me that's important when it comes to me. But for information that's going to other educators, they are probably looking for something that meets the need that they are interested in. So, not every parent or educator would go, "hang on, maybe that's not actually research based."*' (Director, NSW, LDC)
	Government-run programs: influential sources	–	• '*I like Munch & Move . . . It's easy to read, it's easy to understand, and colourful. Obviously looks more fun. They've got heaps of resources on there that you can print out for your service for . . . parents to read and kids to obviously look at.*' (Nominated supervisor, NSW, LDC) • '*. . . there's a program called . . . Smiles for miles . . . that's a government initiative, but yeah, local council sort of help run that. So, they normally reach out to us every year if we want to be a part of the program and they offer support around menu planning and things like that.*' (Director, VIC, LDC)
	External non-for-profit organizations	–	• '*They (Nutrition Australia) send . . . newsletters and stuff like that, which is great because you can grab like those little bits of those data bites and you know they'll often have, Facebook tiles that you can share and stuff like that.*' (Director/owner, QLD, LDC)
	–	Headquarter office filters information received	'*If there's important information that we need to be aware of or actions that we need to take, it gets brought up again at the meeting and then sort of followed up, . . . if you just have that information given out . . . how [do] we then share that with the team and things like that. So, I guess [GROUP/COMPANY SERVICE BELONGS TO] sometimes have that push with that guidance in that area, of what actions to prioritize and things like that.'* (Director, VIC, LDC)
	–	Services do not receive HE and PA information	*'There's nowhere that that's promoted. So yeah, but if I need information, I can find it. Does that make sense? I just Google it pretty much . . . .*' (Director, QLD, LDC)
	–	Private organizations	'*. . . a private company that's just trying to make a dollar . . . you've got like those people that travel around to childcare centres and do . . . ball sports for half an hour every Tuesday afternoon . . . that's not what we're about . . . So, we would come at the angle of like giving the children the environment to be able to do that, not paying someone to come in and throw a ball for half an hour or so.*' (Director/owner, QLD, LDC)

(*Continued*)

Table 3 Continued

Global theme	Organizing theme		Illustration
	Facilitators	**Barriers**	
Medium of communication	Printed materials	–	*'Because I'm old school . . . just because if it's important, I like to have it in my hand . . . we have trainees here too who are studying, and I think sometimes . . . they need information that they can go and search it because it's there.'* (Director/owner, NSW, LDC)
	Emails	–	*'I like using email just because I can get back to it. And I do find like other people. Maybe they're a bit the same that they're all pretty busy as well . . . they will get back to it when they have time.'* (Director, NSW, LDC)
	Face-to-face	–	*'I think the ability . . . to actually have conversations, real life conversations is very helpful. So if you're talking to me and then at the end of the conversation you said, 'I'm going to send you through, whatever it is to do with healthy eating', the connection is there already. And that's what would make it work personally for me. But I think it is just having access to that information is invaluable it, but it doesn't happen.'* (Director, VIC, LDC)
	Videos/webinars	–	*'[A supermarket chain] say they did a lot of at the time when they introduced their meal planning and support with that they brought out a few professional development videos. So that's always a really good way that . . . you can get the staff involved, you can play them at staff meetings or . . . if you've got time, . . . off the floor or when the when it's quiet time, then they can come out and have a look.'* (Director, WA, LDC)
	Social media	–	*'Yeah, social media . . . You just scrolling. You're at home and you're scrolling and then you see it and you're like, 'oh, I remember that for work.'* (Nominated supervisor, NSW, LDC)
	–	Emails	*'I get too much information. Probably can be a bit overwhelming and when you've got to sort out what you need and what you want, that gets a little bit too much and it goes in the too hard basket I guess.'* (Director, QLD, preschool (PSK))

(*Continued*)

Table 3 Continued

Global theme	Organizing theme		Illustration
	Facilitators	**Barriers**	
Content of communication	Relevance of information to the service, the children, and families	–	*'I think for me personally if I was provided with the content it wouldn't matter how I got it, as long as it was relevant to what we're doing, so if that if an email comes in this morning about healthy eating and nutrition, I'd read it and be very interested.*' (Director, VIC, LDC)
	Preference for simple and concise content	–	*'Make it short and snappy rather than like a big, long winded, yeah.'* (Participant 2, Nominated Supervisor, NSW, LDC) *'That's the old KISS principle. Keep it simple, stupid.'* (Director/owner, NSW, LDC)
	Content is adapted to all audiences	–	*'Also, keeping in mind that, [we're in a] low socioeconomic area, . . . we have a high Indigenous population. So, lots of those elders, they can't read and write like they don't have basic literacy skills. So, I'm telling, you know, this little [name of clan] boy, that telling his grandma who can't even sign-in because she can't tell the time, I'm telling her that her kid can't bring chips and chocolate and she's got no idea what I'm talking about . . . She's like "you're crazy, lady." So, if I can put something for . . . [in] culturally specific language like does it have some of that Indigenous artwork or something behind it.'* (Director/owner, QLD, LDC)
	Presentation of practices visually pleasing, easy to understand and use	–	*'Now that's a good question because I do think that sometimes we get things from government departments that are just a lot of words and it's like "ohhh, my gosh". What I like about what I get from this other lady that I was talking about is . . . she's got it's easy on the eyes. It's attractive. It attracts you to it. It has a picture or a bit of a cartoon or something, . . . and it's just to the point . . . and you can click on sites if you wanna go further and all the rest of it. But sometimes we get things, especially from some government departments that are just, pages of blurb and I was like "ohh really do I need to go through all this?" . . . I've been telling myself for years.'* (Director/owner, NSW, LDC)
	Including research and aligning with the organization's goals	–	*'I guess it's . . . ensuring that it's following our policies and procedures. That would be the only thing that would block any of that information, being able to put into practice, we'd have to make sure that . . . it's in our policies and procedures that we can use it most definitely.'* (Director, WA, LDC)
	–	Large amount of information, containing numbers or statistics	*'as you mentioned before, heaps of statistics, heap of testimonials, heaps of reading, we're not gonna do it . . . we'll just skim right past that because we just don't have the time and or the inclination to sort of work through all of that.'* (Director, QLD, PSK)

(*Continued*)

Table 3 Continued

Global theme	Organizing theme		Illustration
	Facilitators	**Barriers**	
Audience	Perceive themselves as visual learners	–	'*I'm very visual, so if you can make it visually appealing but not overwhelming that that's how I would prefer to receive information . . . so it keeps me interested. Images that speak to the text so that I can create that connection, and I'll remember the image and then that will remind me of the text, not like words are great, but when it becomes overly wordy, I think it it's hard to keep people's attention and interest.*' (Educational leader, ACT, LDC)
	–	Lack of time to select, read, and subsequently share relevant information with their staff	'*having the time to actually sit and be able to read that one, I mean with you'll sit down to your computer and then you called back on the floor or . . . there's a child that's upset in this room.*' (Educational leader, WA, LDC)
Salience of HE and PA practices	HE and PA practices are important for children's futures	–	'*Very relevant . . . I gotta ensure that my staff are teaching the children the importance of healthy eating and physical activity . . . it's in our centre for philosophy and it's a personal philosophy as well . . . we've gotta teach our little citizens how important it is. So we're setting them up the . . . good life skills.*' (Director, WA, LDC)
	HE and PA are relevant to the educators' role	–	'*because we are role models . . ., we're also responsible for educating and teaching them those important values . . ., setting the foundations of learning for life.*' (Director, VIC, LDC)
	Relevance of practices as they are included in their quality standards	–	'*. . . under the national quality standard, I need to demonstrate that we are engaging in we're supporting families and children and providing healthy eating and movement at the same time. So that's embedded in our accreditation process and that my position to lead that . . . it's what children need, there is that requirement to meet the regulatory framework.*' (Director, NSW, LDC)
Context	Having a good relationship with local schools and the community	–	'*any campaigns or anything like that . . . that we hear of, like clean up Australia Day, we got information on that. So, then we took our kindys on an excursion to participate in that.*' (Director/owner, QLD, LDC)
	–	Lack of access to information due to location	'*I don't know . . . our access because we're rural. We can't get the access, so they don't reach out sometimes. Like if you lived in Sydney, you'd get more people reaching out. But where we live, our closest town is an hour away.*' (Nominated supervisor, NSW, LDC)
Interpersonal networks	Disseminating practices through network is beneficial depending on the agenda and format of meetings	–	'*it depends on how it was run and what information was being shared, because often these sorts of groups it just becomes people asking questions . . . so all you do is spend your time with meeting other people's questions rather than learning of new information.*' (Educational leader, ACT, LDC)
	–	Lack of networks or access to them	'*I've been trying to look for [a network]. There is literally none.*' (Nominated supervisor, NSW, LDC)

as easy to access and available at any time, especially when the service belongs to a broader organization which has an intranet or a resource hub.

Global theme 3: content of communication

This theme represents the type of information received and how it is presented [21]. For example, when the content is research-based, it may be presented in a full report, as a summary, or including numerical results. This theme also refers to the format in which it is presented such as including figures, graphs, colours, or links. The organizing themes that were facilitators include: (i) relevance of information to the service, the children, and families, (ii) preference for simple and concise content, (iii) content is adapted to all audiences, (iv) presentation of practices visually pleasing, easy to understand and use, and (v) including research and aligning with the organization's goals. One organizing theme was a barrier: a large amount of information containing numbers or statistics.

Participants mentioned that it is important that the content of the information is relevant to the service's needs, interests, or to what the service is currently doing. They also revealed that they preferred simple and concise content as they have busy schedules and lack time, they perceived staff to not have the appropriate qualifications to understand research, and they are usually overloaded with information:

> *'That's the old KISS principle. Keep it simple, stupid.'* (Director/owner, NSW, LDC)

When the content is adapted to all audiences such as educators, families, and the community in which the service is located, it facilitates dissemination. This includes adapting the content to reach low socioeconomic populations, low educational level population, culturally and linguistically diverse, and Indigenous communities. Using content that is relevant and attracts the attention of the person accessing it, might facilitate engagement, reduce inequities, and consider the communities' needs:

> *'Also, keeping in mind that, [we're in a] low socioeconomic area, . . . we have a high Indigenous population. So, lots of those elders, they can't read and write [. . .] So, if I can put something for . . . [in] culturally specific language like does it have some of that Indigenous artwork or something behind it.'* (Director/owner, QLD, LDC)

Another facilitator was the alignment between the information received and service's current policies and procedures. Furthermore, participants preferred when information about practices is presented in an adapted format and visual way, with diagrams, images, colours, and headings, catching the attention of readers and easier to read and use.

A barrier regarding the content of information is that participants are overwhelmed when they receive a large amount of content. Participants noted they do not have the time to read it which might lead to missing important information. A participant said:

> *'as you mentioned before, heaps of statistics, heap of testimonials, heaps of reading, we're not gonna do it . . . we'll just skim right past that because we just don't have the time and or the inclination to sort of work through all of that.'* (Director, QLD, PSK)

Global theme 4: audience

This theme includes a description of how participants' perception of themselves can affect how they process information [21]. Only two organizing themes—one facilitator and one barrier—were identified. One facilitator identified was that some participants perceive themselves as visual learners, leading to a preference for receiving information in visual formats. A participant noted that images help contextualize text making it easier to understand and remember (see also global theme 3):

> '*I'm very visual, so if you can make it visually appealing but not overwhelming that that's how I would prefer to receive information . . . so it keeps me interested. Images that speak to the text so that I can create that connection, and I'll remember the image and then that will remind me of the text, not like words are great, but when it becomes overly wordy, I think it it's hard to keep people's attention and interest.*' (Educational leader, ACT, LDC)

One key barrier shared by most participants is a lack of time to select, read, and subsequently share relevant information with their staff. One participant shared:

> *'having the time to actually sit and be able to read that one, I mean with you'll sit down to your computer and then you called back on the floor or . . . there's a child that's upset in this room.'* (Educational leader, WA, LDC)

Global theme 5: salience of HE and PA practices

This theme relates to the importance of HE and PA practices to the director's role, personal values, and their staff perception of these practices [21]. Three organizing themes were facilitators: (i) HE and PA practices are important for children's futures, (ii) HE and PA are relevant

to the educators' role, and (iii) relevance of practices as they are included in their quality standards. No barriers were identified for this global theme.

Participants recognized that HE and PA practices are crucial for children's lifelong habits and well-being and that they align with the participants' personal and professional values. A participant said:

> *'Very relevant . . . I gotta ensure that my staff are teaching the children the importance of healthy eating and physical activity . . . it's in our centre for philosophy and it's a personal philosophy as well . . . we've gotta teach our little citizens how important it is. So we're setting them up the . . . good life skills.'* (Director, WA, LDC)

Participants also revealed that these practices are relevant to their role as they act as role models to children. Lastly, participants mentioned these practices are part of the quality standards that the educators and services need to abide by, and it is part of their 'duty of care'. They not only are interested in these practices to benefit children but also to meet requirements.

Global theme 6: context

This theme relates to the outer setting such as the geographical location, the community or local institutions, and how these can affect the service's decision to read information related to HE and PA [21]. Two organizing themes were identified including one facilitator: having a good relationship with local schools and the community, and one barrier: lack of access to information due to location.

Participants reported that having a relationship with local schools and companies encourages them to engage with the information and promote it or embed the practice in their service. Also, they engage with events that are organized in their community. A participant mentioned:

> '*any campaigns or anything like that . . . that we hear of, like Clean Up Australia Day, we got information on that. So, then we took our kindys on an excursion to participate in that.*' (Director/owner, QLD, LDC)

However, some participants noted the lack of access to information due to their geographic location. One participant mentioned:

> '*I don't know . . . our access because we're rural. We can't get the access, so they don't reach out sometimes. Like if you lived in Sydney, you'd get more people reaching out. But where we live, our closest town is an hour away.*' (Director, NSW, LDC)

Global theme 7: interpersonal networks

This theme explores how interpersonal networks could be seen as a channel or strategy to send and receive HE and PA information [21]. Two organizing themes were found. One facilitator—disseminating practices through network is beneficial depending on the agenda and format of meetings, and one barrier—lack of networks or access to them.

Participants revealed that if they participated in network meetings or events, they would prefer it to be with a set agenda, instead of answering to specific questions. This shows how their participation relies on the relevance of the information. A participant noted:

> '*it depends on how it was run and what information was being shared, because often these sorts of groups it just becomes people asking questions . . . so all you do is spend your time with meeting other people's questions rather than learning of new information*.' (Educational leader, ACT, LDC)

Approximately half the participants mentioned the lack of networks (e.g. groups of people connected to each other with the same interest) available to share HE and PA information. A participant revealed that it was her intention to join a network, but she couldn't find one:

> '*I've been trying to look for one. There is literally none.*' (Nominated supervisor, NSW, LDC)

Another participant also expressed her intention to create connections with the local community and has found it difficult due to the high staff turnover at the local schools.

Differences in preferences based on service characteristics

Organizational themes were cross tabulated with service characteristics such as location (State), remoteness, SES, type of service, and type of service provider. These comparisons were exploratory and descriptive, highlighting patterns across service characteristics that may inform tailored dissemination strategies. A preference for simple and concise content was unanimous among regional and remote services, and nearly universal among disadvantaged services, yet this was raised by fewer services (six out of the 10) from major cities. Time was reported as a barrier by eight out of 10 disadvantaged long day care services, out of which seven are in regional or remote areas. In contrast, long day care services in major cities predominantly omitted this barrier. Participants reported a preference for printed materials, especially long day care services in most disadvantaged areas, yet

seven out of 10 remote long day cares also emphasized a desire for face-to-face contact, compared to a minority of services located in major cities.

Discussion

This study revealed key factors identified by Australian ECEC staff influencing the dissemination of HE and PA policies and practices, and their preferences for dissemination. To our knowledge, this is the first study exploring the barriers and facilitators to dissemination of both HE and PA policies and practices within ECEC services in Australia, using determinants from dissemination and implementation frameworks [21]. Overall, the findings of this study suggest that successful dissemination in the ECEC setting depends not on a single dissemination strategy, but on the interaction between the source, message channel, and context. It shows that the audience engages with information when it is delivered by a trusted organization, presented in clear and concise formats, aligned with standards, and disseminated through multiple communication channels. However, contextual factors, such as access to networks, time and service characteristics, influence dissemination, and reach.

A main finding in our study is that participants value receiving practices from reputable, trusted sources such as the Department of Health, Education, ACECQA, or government-run programs such as Munch & Move and Smiles4Miles. Similarly, Finch *et al.* (2023) found that most centre-based services preferred to receive information from ACECQA (88%), ECEC-specific sources (87%), and government departments (84%) [42]. Our findings suggest that ECEC services rely on trusted organizations to interpret and communicate evidence, rather than doing it themselves. This may explain why only half of participants in Finch *et al.*'s study preferred receiving information from researchers, valuing the credibility of the source over the evidence itself [42]. Combined, these findings suggest that researchers and health promotion practitioners could improve reach by partnering with influential organizations, such as non-government organizations (e.g. Cancer Council, National Heart Foundation) and ECEC-specific organizations such as Early Childhood Australia.

The perceived usefulness, relevance of information to staff roles and workplace contexts, and clarity and conciseness of the information received were important to participants. Participants reported greater engagement with information when it aligned with the National Quality Framework, which underpins quality standards, curriculum programming, and assessment in Australian ECEC services, as well as encouraging connection with local community events and initiatives. Consistent with our finding regarding alignment with frameworks, a qualitative study conducted in Norway found that educators preferred clear information in a digital health promotion resource that emphasized legislation and was relevant to their curriculum [48].

Participants identified multiple communication channels to better engage with disseminated information. Face-to-face interactions were valued for fostering rapport and enabling immediate feedback, while emails were recognized as an accessible and convenient means for ongoing information access. These findings align with those from Finch's *et al.* study which participants reported a preference for receiving information through workshops (63%), webinars (61%), meetings (36%), and emails (20%) [42]. Furthermore, the use of diverse dissemination channels has been shown to increase intention to adopt PA practices [49]. These results suggest that a combination of dissemination channels, rather than relying on a single mode, may enhance information dissemination. Moreover, tailoring communication channels to audience preferences may improve dissemination outcomes. Therefore, a previous assessment of the target audience preference should shape dissemination channels.

Our findings suggest that ECEC staff value participation in professional and community networks, with connections with local schools, councils, families, and colleagues fosters dissemination. This aligns with studies such as Wallace *et al.* [50], where online interaction (forums) among 1045 educators fostered emotional connections and knowledge sharing. Similarly, Murtha *et al.* [51] emphasized the role of community support and two-way communication between ECEC staff, families, and the Aboriginal and Torres Strait community. However, some participants reported limited access to networks, particularly in rural and remote areas, hindering their ability to exchange evidence-based practices. For researchers and policymakers, these findings suggest that dissemination strategies should be co-designed with ECEC stakeholders and embedded within existent local networks identified through stakeholder analysis, and social network analysis [52] rather than relying on a single dissemination approach. Partnering with researchers, policymakers, trusted sector organizations, community leaders, and ECEC staff, while tailoring resources to the needs of diverse communities and service context, may improve the reach, engagement and uptake of evidence-based HE and PA practices across the ECEC sector. Further research should evaluate how co-designed dissemination strategies and network structures can increase the impact of these practices, particularly in regional and remote ECEC services.

Participants expressed feeling overwhelmed by the volume of information they received, citing text-heavy

content and a lack of time as main barriers. In contrast, some participants noted a lack of information, forcing them to search for information independently. These contrasting experiences suggest that access to and engagement with HE and PA practice information vary among ECEC staff likely influenced by factors such as role, available time, geographic location, and service type (e.g. preschool versus long day care). Future research should explore strategies to address these barriers, particularly ECEC directors and consider these factors when designing dissemination materials.

Strengths and limitations

This study included a varied sample, from four different Australian States and Territories, including both private and public ECECs, with high duty roles and extensive experience. The study employed an abductive qualitative design, utilizing a scoping review to guide the interview development while remaining open to emergent insights. However, due to the qualitative nature of the research, the study does not examine the relative weight of each of the barriers and facilitators or establish causal relationships. Findings of this study may be affected by recall bias, for example, participants inability to accurately recall past events and details, lack of perceived utility of emails, or irrelevant information from senders. Future research incorporating quantitative methods could provide complementary perspectives.

Conclusion

This study identified key factors influencing the dissemination of HE and PA policies and practices in ECEC services, highlighting the importance of trusted sources, clear and relevant content, and diverse communication channels, while also addressing challenges faced by remote services, such as limited networks and time. These findings emphasize the need for tailored dissemination strategies, such as the use of multiple channels, especially for remote services, and suggest that establishing networks and partnerships between practitioners, researchers and end-users could improve dissemination.

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Author contributions

Ana Renda, Kathryn Reilly, Serene Yoong, Rebecca Kate Hodder, and Alice Grady conceptualized and supervized the progress of this study. Ana Renda, Kathryn Reilly, Alice Grady, and Sarah Taki designed the methodology. Ana Renda conducted participants interviews. Ana Renda and Christian Criado-Perez performed data analysis, and the interpretation of findings. Ana Renda wrote the original draft. All authors contributed to editing and reviewing the manuscript and approved the final version.

Supplementary data

Supplementary data is available at *HEAL* online.

Conflicts of interest

None declared.

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Data availability

The data underlying this article cannot be shared publicly due to ethical reasons and the privacy of the individuals that participated in this study.

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