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RESEARCH ARTICLE

Barriers to preschool aged children's participation in swimming lessons in New South Wales, Australia

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Abstract

Issue Addressed: To understand barriers to uptake of subsidised swimming lessons by children aged 3–6 years old ('preschool aged children'), including from priority populations, in New South Wales (NSW).

Methods: A thematic analysis of 4191 qualitative responses from parents/carers of preschool aged children describing barriers that resulted in their child's non-participation in subsidised swimming lessons in the past 12 months was conducted. Data, including parent/carer sociodemographic variables, were collected through registrations for the NSW Government's First Lap voucher program.

Results: Seven overarching barriers to participation were identified: (1) child's disability or health needs; (2) swimming lesson affordability; (3) family or personal circumstances; (4) lack of or poor availability of swimming lessons; (5) parent/carer availability, including to fulfil participation requirements; (6) COVID-19 and (7) deprioritisation of formal swimming lessons due to parent/carer perceptions relating to its importance. These may limit the uptake of swimming lessons in preschool aged children, particularly those who are Aboriginal and Torres Strait Islander, from culturally and linguistically diverse backgrounds, living with a disability, from low socioeconomic families and living in regional and remote areas.

Conclusion: Structural barriers must be addressed to increase uptake of swimming lessons in preschool aged children, particularly in priority populations, to reduce drowning risk.

So What? Evidence-based policy initiatives, with robust evaluation, should seek to address the availability and flexibility of swimming lessons, including for priority populations; complexities associated with supervision requirements; poor awareness of parents/carers of the importance of swimming for preschool aged children and the lack of continuity of swimming for children in out of home care.

KEYWORDS

COVID-19, determinants of health, disability, drowning, education, preschool, swimming

1 | INTRODUCTION

Fatal and non-fatal drowning incidents are a leading cause of death and disability in children globally.[1,2] In Australia in 2021–2022, 38 children aged 0–17 years died from unintentional drowning, with the highest rates in children aged 0–4 years.[3] Drowning is a preventable, multisectoral issue, with known effective interventions at the household, community and societal levels.[4] Swimming lessons are one evidence-based drowning prevention strategy[4]; with pre-school aged children most vulnerable to drowning, learning water safety and swimming skills early is a vital component of multi-faceted risk reduction.[3]

In Australia 1.4 million children participate annually in private swimming lessons.[5] These lessons are critical for pre-school aged children who cannot yet be enrolled in school-based swimming lessons but can begin to gain aquatic competencies.[6] However, barriers linked to socioeconomic factors can impact access to, and uptake of, swimming lessons,[7,8] resulting in lower rates of learn to swim attendance in children who are Aboriginal and Torres Strait Islander, from culturally and linguistically diverse backgrounds, living with a disability, from low socioeconomic families, and living in regional and remote areas—(collectively 'priority populations').[4,8]

Recently, impacts of the COVID-19 pandemic (including lockdowns, restrictions, economic and health consequences) and environmental disasters such as floods and bushfires (including displacement of communities, family life disruptions, and financial impacts) have exacerbated existing sociodemographic disparities in swimming lesson participation in Australia.[3] Royal Life Saving Society—Australia (RLSSA) identified an increase in drowning deaths in children aged 5–14 years in 2021–2022 and acknowledged the impacts of COVID-19 on child swimming lesson participation.[3] Studies have identified other factors that may impact a child learning to swim, including child negative prior aquatic experiences,[9] and swimming pool access.[10]

Another barrier to access is cost. A 2018 RLSSA report found that the average swimming lesson cost in Australia was AUD 15.50 (USD 10.59) for children aged 2–4 years.[11] With Australia's increasing consumer price inflation, affordability remains a challenge.[12] To incentivise participation in swimming lessons, some governments in Australia have implemented voucher programs, some specifically for learning to swim, and others more broadly focused on sports participation (including learning to swim).[5]

The New South Wales (NSW) Government's First Lap voucher program ('First Lap') is one such program. First Lap aims to improve water safety education access for NSW families, including priority populations, by providing two government funded $100 vouchers (one per financial year) for parent/carers of children aged 3–6 years who are not enrolled in school to contribute to swimming lesson costs. In the 2021–2022 financial year, children in kindergarten in 2021 or 2022 who missed out on water safety education opportunities during their pre-school years due to COVID-19 restrictions, were also eligible for First Lap. The voucher must be used for a program of at least five structured, supervised swimming lessons, which are either intensive (daily) or regular weekly lessons with a participating business that is an approved First Lap provider. First Lap is delivered by the NSW Office of Sport and commenced in December 2021.

To best prioritise resources and increase uptake in swimming lessons, particularly in priority populations, understanding barriers to accessing swimming lessons for pre-school aged children is important. While First Lap seeks to address swimming lesson affordability, recent research shows that a voucher to support participation in structured physical activity programs does not alleviate all barriers and should be supported by initiatives which address remaining challenges.[13] However, there is scant literature regarding pre-school children's barriers to accessing swimming lessons. A recent evaluation of the NSW Government's Active Kids voucher program found that a financial incentive significantly increased physical activity levels in children and adolescents, however, disparities continued to exist between sociodemographic groups.[14]

This study draws on routinely collected voucher creation data for First Lap and aims to identify pre-existing barriers to swimming lesson participation by children aged 3–6 years old in NSW. It forms a part of a broader impact and economic evaluation of First Lap.[15]

2 | METHODS

2.1 | Design

We undertook a qualitative thematic analysis,[16] with some descriptive quantitative analysis undertaken to understand the findings by sociodemographic groups.

2.2 | Data collection

Data came from 221 218 voucher creation records completed by parents, carers and guardians (hereafter 'parents/carers' or 'participants') of children for First Lap between 1 December 2021 and 30 June 2022. Parents/carers routinely completed the questionnaire upon voucher creation via a bespoke online platform managed by Service NSW. Participants indicated their child's gender, disability status, Aboriginal and Torres Strait Islander status and primary language spoken at home. Respondents also entered a residential postcode which was used to identify the child's socioeconomic status and geographic classification using the Socio-Economic Indexes for Areas index and Remoteness Areas Structure within the Australian Statistical Geography Standard.[17,18] They also reported whether their child had participated in swimming lessons in the previous 12 months, and where they had not, indicate (via multi-select check boxes) the factors that resulted in the child's non-participation. The registration form questions are provided in Appendix A (Table A1), with the multi-select reasons in Figure 1.

2.3 | Participants

During registration, 79 515 (35.9%) parents/carers indicated that their child had not participated in swimming lessons in the previous 12 months and provided at least one reason for non-participation. Of these respondents, 4191 selected 'Other' from the multi-select

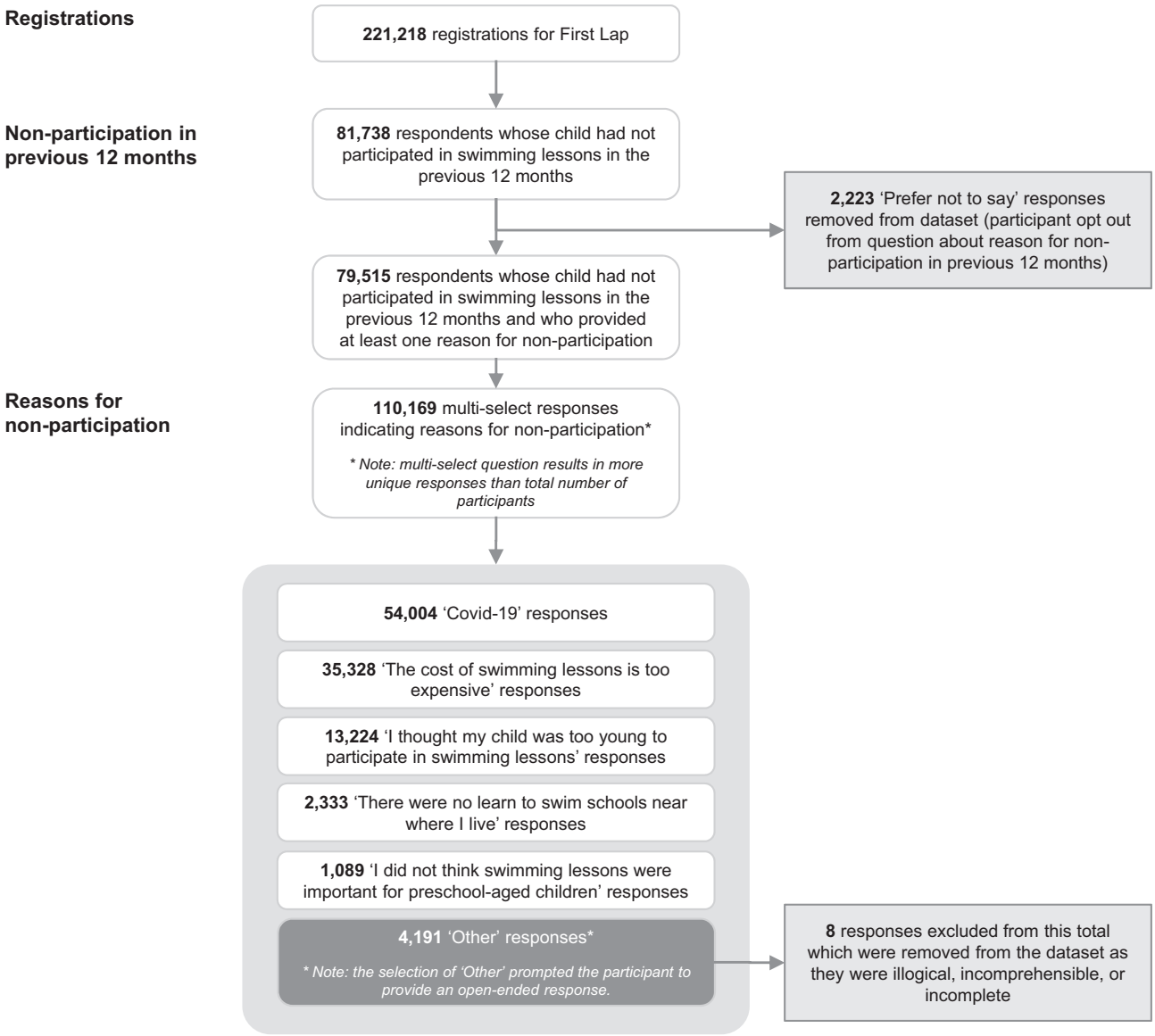

FIGURE 1 Study participants.

options and provided an open-ended response outlining reason(s) for non-participation. These 4191 responses were the focus of the thematic analysis in this study, with participant's responses categorised by sociodemographic variables where relevant. Study participants are shown in Figure 1.

2.4 | Data analysis

The qualitative data were analysed in line with the six phases of thematic analysis as outlined by Braun and Clarke.[19] The research team comprised four members—three university-based academics, all with expertise in drowning prevention and qualitative research, and a postgraduate student with professional expertise in qualitative research and evaluation. Two researchers (Vidthyany Ananthapavan, Rona Macniven) independently familiarised themselves with the 4191 responses. They generated initial codes for 100 responses and then discussed, compared and aligned codes, with a third researcher (Amy E. Peden) providing input to reach consensus where required. Following this, the first author coded the remaining 4091 responses. Coding was documented in Microsoft Excel. When a code was applied to one response—for example, where a response was 'Grommets' and the response was coded as 'Child has or had grommets'—the researcher then filtered the dataset by the term 'Grommets' and applied the code across the results where appropriate for consistency. At the conclusion of the initial coding, the three researchers reviewed the codes, with some adjustments made to the initial 68 codes to increase specificity or ensure they were not duplicative. There were 24 responses initially coded as 'not applicable' due to the response being illogical, incomprehensible or incomplete. Six of these referred to other responses (e.g., 'as above'); these were able to be re-coded by matching pre-selected data points. A further five codes, relating to

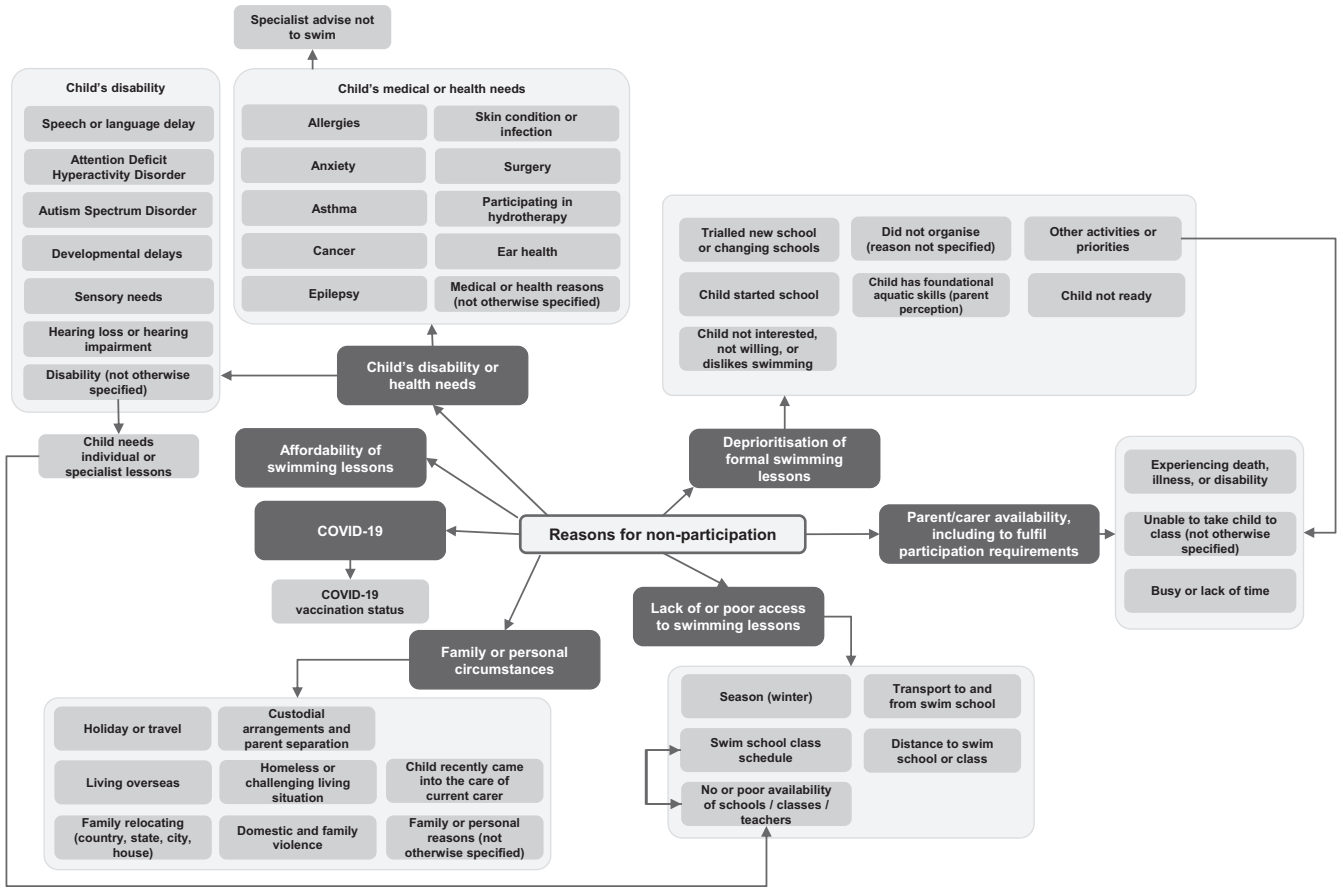

FIGURE 2 Thematic map.

medical and health conditions, were collapsed and removed. Following the finalisation, there were 63 unique codes. The researchers quantified the number of occurrences of each code in the responses from participants and calculated the percentage of participants who provided each reason (code). The codes were used to derive potential themes and a thematic map was developed to visually represent themes and codes (Figure 2). Themes were then defined and named, and key exemplifying quotes provided. Sociodemographic data provided by parents/carers were descriptively analysed to support an understanding of the results by demographic characteristics.

3 | RESULTS

The demographics of the children of the 4191 participants are shown in Table 1. Of these children, 389 (9.3%) had a disability, 305 (7.3%) identified as Aboriginal or Torres Strait Islander and 354 (8.4%) spoke a primary language at home other than English. Further, 800 (19.1%) children resided in the most disadvantaged postcodes (Quartile 1), compared to 1161 (27.7%) residing in the least disadvantaged (Quartile 4) postcodes. There were 2904 (69.3%) children residing in metropolitan areas, while 1279 (30.5%) and eight (0.2%) children resided in regional and remote areas, respectively. Of the 4191 children, 3857 (92.0%) were aged 3–6 years old, with 334 (8.0%) aged 7–8 years old.

Seven overarching barriers to participation of preschool aged children in swimming lessons were identified in the thematic analysis: (1) child's disability or health needs; (2) swimming lesson affordability; (3) family or personal circumstances; (4) lack of or poor availability of swimming lessons; (5) parent/carer availability, including to fulfil participation requirements; (6) COVID-19 and (7) deprioritisation of formal swimming lessons due to parent/carer perceptions relating to its importance. As shown in the thematic map, several of these factors were interconnected, with 985 (23.5%) participants identifying multiple reasons for non-participation. This results in the total number of codes (5361) exceeding the total number of participants (4191). The codes and number of occurrences for reasons identified by at least 1% of all participants are shown in Table 2. The full list of codes and number of occurrences is provided in Appendix B (Table B1).

3.1 | Child's disability or health needs

A common reason for non-participation was the child's disability or health needs. Commonly cited disabilities were autism spectrum disorder, sensory needs and developmental delays. Common health and medical needs were ear health, skin condition or infection and a recent surgery.

Parents/carers of children with a medical or health need suggested that their avoidance of swimming classes was to minimise the

TABLE 1 Demographics of participants who provided an 'Other' response to reasons for non-participation.

Participant demographics	Number (#)	Percentage (%)
Gender		
Male	2272	54.2
Female	1914	45.7
Prefer not to say	5	0.1
Disability		
Yes	389	9.3
No	3728	89.0
Prefer not to say	74	1.8
Aboriginal or Torres Strait Islander		
Yes	305	7.3
No	3842	91.7
Prefer not to say	44	1.0
Primary language spoken at home		
English	3837	91.6
Language other than English	354	8.4
Socioeconomic status		
Quartile 1 (Most disadvantaged)	800	19.1%
Quartile 2	1416	33.8%
Quartile 3	814	19.4%
Quartile 4 (Least disadvantaged)	1161	27.7%
Geographic classification		
Metropolitan	2904	69.3%
Regional	1279	30.5%
Remote	8	0.2%
Total responses	4191	100

risk of a health-related incident. This was often mentioned with advice from a medical specialist.

> [She] suffers from epilepsy and I felt it was too dangerous for her to attend. She has not had a seizure in four months, so I feel now is a good time to start lessons.
>
> Parent/carer of child (3 years), Quartile 1 (Most disadvantaged), Metropolitan

Additionally, parents/carers of children with disability noted that their child required specialist or individual swimming lessons due to their child's disability or health needs, which results in an increased cost for swimming lessons. They also specified that there were few swimming schools, classes and teachers able to provide reasonable adjustments specific to the learning needs of their child.

> His disability makes learning hard as I need someone who can handle him, and [the] costs of personal swim teachers made it difficult
>
> Parent/carer of child (5 years), Quartile 2, Regional

TABLE 2 Codes for 'Other' responses to reasons for non-participation in swimming lessons identified by at least 1% of participants.

Codes by theme	Number (#)	Percentage (%)
Child's disability or health needs		
Child's disability		
Autism Spectrum Disorder	68	1.6
Disability (not otherwise specified)	111	2.6
Child's medical or health needs		
Ear health	255	6.1
Skin condition or infection	53	1.3
Surgery	48	1.1
Medical or health reasons (not otherwise specified)	202	4.8
Affordability		
Affordability	76	1.8
COVID-19		
COVID-19 (health risk, restrictions)	177	4.2
Family or personal circumstances		
Previously living overseas	104	2.5
Family relocating (country, state, city, house)	97	2.3
Access to swimming lessons		
Lack of or poor availability of schools, classes, or teachers	755	18.0
Swim school class schedule	225	5.4
Parent/carer availability, including to fulfil participation requirements		
Busy or lack of time	324	7.7
Multiple children	300	7.2
Parent or carer studying or working	245	5.8
Participation requirements (in-pool)	112	2.7
Experiencing death, illness, or disability	50	1.2
Deprioritisation of formal swimming lessons		
Child not interested, not willing, or dislikes swimming	231	5.5
Fear or water, pools, swimming, or drowning	308	7.3
Negative past experience	40	1.0
Other activities or priorities	104	2.5
Child not ready	81	1.9
Lack of confidence	47	1.1
Child has foundation aquatic skills (parent/carer perception)	56	1.3
Parent, carer, or family member teaching	388	9.3
Pool at home or home of family or friend	246	5.9
Did not organise (reason not specified)	94	2.2
Total codes	5361	

> Most swim schools do not cater to children with disabilities
>
> Parent/carer of child (7 years), Quartile 1 (Most disadvantaged), Metropolitan

3.2 | Swimming lesson affordability

After COVID-19, the cost of swimming lessons was the second most common pre-selected reason for non-participation in formal swimming lessons (35 328 of 81 738 non-participants, Figure 1). A further 76 (1.8%) parents/carers discussed the affordability of swimming lessons in the qualitative responses to the 'Other' option. Some parents/carers discussed the impacts of COVID-19 (restrictions, loss of employment) on family and household budgets, resulting in a need to reprioritise expenditure. The 'affordability' code was evident across socioeconomic strata, with 16 of the participants residing in the most disadvantaged postcodes (Quartile 1), compared to 18 residing in least disadvantaged (Quartile 4) postcodes.

> We stopped through most of covid for financial reasons
>
> Parent/carer of child (6 years), Quartile 3, Regional

> I was teaching her myself given the cost of lessons
>
> Parent/carer of child (4 years), Quartile 4 (Least disadvantaged), Metropolitan

For families, affordability was driven by total household income and total expenditure on activities. As a result, single parents/carers commonly noted that swimming lessons were not affordable, as did parents/carers (single or otherwise) with multiple children.

> I can't afford being a single mum
>
> Parent/carer of child (4 years), Quartile 4 (Least disadvantaged), Metropolitan

> I have two other children attending lessons, so it has been too costly to add a third until this voucher became available
>
> Parent/carer of child (3 years), Quartile 2, Regional

3.3 | Family or personal circumstances

Another factor influencing non-participation was family or personal circumstances which either resulted in the family being dislocated or unable to consistently attend lessons. This may be partially driven by the structure of swimming lessons which typically require attendance on a weekly basis for a set period (e.g., a 10-week term).

Across the participants, 104 (2.5%) cited previously living overseas as the reason for non-participation, often in countries where formal swimming lessons for children were not available or considered less important than in Australia. Another common reason was the relocation of the family to a new country, state, city or house. These circumstances were associated with the short-term dislocation of the family and were typically combined with the parent/carer needing time to locate a new swim school and allowing their child to 'settle in' prior to recommencing activities, including swimming lessons.

> She came from Japan last year and needed time to get used to life in Australia and school
>
> Parent/carer of child (7 years), Quartile 4 (Least disadvantaged), Metropolitan

Participants also raised challenging circumstances associated with the family unit as a reason for non-participation. These circumstances included custodial arrangements and/or the recent separation of the child's parents/carers which limited the parent's ability to consistently accompany their child to class. Other reasons included the parent/carer and/or child experiencing domestic and family violence. Participants noted that the existence of these circumstances impacted their ability to prioritise swimming lessons and/or accompany their child to the lessons.

> Due to co-parenting, [she] was not in the same town every week
>
> Parent/carer of child (4 years), Quartile 2, Regional

> [We] escaped domestic violence and been living in a shelter, so our safety came first
>
> Parent/carer of child (3 years), Quartile 4 (Least disadvantaged), Metropolitan

A small number of children did not participate in the previous 12 months due to them not yet being in the care of their current carer, predominately through NSW Government's out-of-home care (OOHC). For these children, the carers completing the voucher creation form typically had no clarity on the child's history with swimming lessons.

> [He] has only recently come into my care under the foster care system
>
> Parent/carer of child (6 years), Quartile 4 (Least disadvantaged), Regional

3.4 | Swimming lesson availability

Three interrelated factors contributing to non-participation were availability of pools and swimming classes, the schedule of the swimming classes and ability to travel to the swim school.

In addition to the 2333 participants who selected the pre-selected option 'there were no learn to swim schools near where I live' a further 755 ($n = 18\%$) of parents/carers provided a qualitative response that suggested the primary reason for non-participation was lack of or poor availability of swim schools, classes or teachers. Additionally, 35 participants (0.8%) indicated that non-participation was

due to lack of or poor availability of schools, classes or teachers suitable for children with disability. Of these 790 participants, 43.4% were from a regional or remote area. Some responses suggested that the availability of lessons was driven by factors including renovations, COVID-19 restrictions, environmental disasters and a limited number of classes available for each age or skill group. A smaller number of parents/carers also indicated that a key barrier was the poor availability of indoor or heated swimming pools which made attending swimming lessons during the colder months difficult. Again, this disproportionately affected children in regional areas, with three-quarters of these participants being from regional NSW.

> Been trying for four years to get her into the local swim school with no success
> Parent/carer of child (5 years), Quartile 2, Regional

> It was all booked out where I live
> Parent/carer of child (3 years), Quartile 2, Remote

> Living regionally makes it hard to access warm pools easily and [the] local pool is only open a few months a year, so it's only feasible to do this for the summer months. Due to the flooding that has occurred here recently it has made these swimming lessons happen much later than they should have
> Parent/carer of child (4 years), Quartile 1 (Most disadvantaged), Regional

Swim school schedules were referred to by 225 (5.4%) of parents/carers. They noted that the available times for classes were typically during school or work hours, with few classes available in the evenings or on weekends. Parents/carers with multiple young children, including twins, identified that it was difficult to find classes for their children to attend at the same time and/or in consecutive sessions. Some noted that they had not enrolled their child as they already attended a weekly class with their sibling and could not do both. Other participants pointed to the rigidity of schedules, specifically that many swim schools require weekly participation over a specific period and they are required to pay for sessions even when the child does not attend.

> [I] already take [their] older siblings to swimming lessons. Haven't organised lessons for this child in the past as it's means I'll have to go twice a week as preschool lessons and school age lessons are run at different times of the day
> Parent/carer of child (4 years), Quartile 2, Metropolitan

> The class was charging every week even if I could not make it and with three kids, I was losing too much money
> Parent/carer of child (5 years), Quartile 1 (Most disadvantaged), Regional

For some children, access to swimming lessons was affected by their distance from the swim school or the limited transport options to and from the school challenges around transportation were driven by the parent/carer not having access to a car, not having a licence, or there being no or limited public transport options.

> [We] live 140km from a pool
> Parent/carer of child (4 years), Quartile 1 (Most disadvantaged), Regional

> Not accessible to public transport
> Parent/carer of child (5 years), Quartile 3, Metropolitan

3.5 | Parent/carer availability, including to fulfil participation requirements

Some swimming schools require parents/carers to participate with their young child in the class. As a result, participation was influenced by parent/carer availability to fulfil these requirements. This was also influenced by parents/carers' personal experiences or perceptions of swimming. Parents/carers of 324 children (7.7%) cited business or a lack of time as a reason for non-participation. This was typically associated with the parent/carer working or studying, having multiple children, or being a single parent/carer.

> As a parent who works full time it is difficult to find a time that works, especially with a younger child
> Parent/carer of child (6 years), Quartile 3, Metropolitan

> Timing of lessons hasn't lined up… being [a] full time working, single Mum leaves only a small amount of time
> Parent/carer of child (4 years), Quartile 1 (Most disadvantaged), Regional

> I hate swimming, and classes for young kids require adults to participate so I put off doing it
> Parent/carer of child (5 years), Quartile 1 (Most disadvantaged), Metropolitan

Another common factor impacting availability was the death, illness or disability of the parent/carer, or other family member. This impacted the ability to commit to weekly lessons.

> I was undergoing cancer treatment. We were unable to get the kids to swimming lessons so took a break from

lessons

Parent/carer of child (6 years), Quartile 2, Regional

Participants with multiple young children indicated that they found it challenging fulfil participation requirements in the pool as other children would be left unsupervised. Others (including single parents/carers) noted they were unable to supervise multiple children, often twins, in the same class.

> I have twins and as a single mum I was unable to take both children in… [as] apparently each child needed an adult
>
> Parent/carer of child (4 years), Quartile 3, Metropolitan

3.6 | COVID-19

In the pre-select options, COVID-19 was a contributing factor in 66% of non-participating children with. In the qualitative responses to the 'Other' option, a further 177 (4.2%) respondents discussed the impact of COVID-19 on non-participation. In addition to the closure of swim schools due to COVID-19 restrictions, participants identified that COVID-19 resulted in reductions in household budgets (due to lay-offs, or reductions in working hours) impacting lesson affordability. It also increased the risk aversion of parents/carers (fear of their child or themselves contracting COVID-19), leading to their children being withdrawn from classes.

> The threat of getting COVID-19 and [the child's] mum's personal health issues
>
> Parent/carer of child (5 years), Quartile 4 (Least disadvantaged), Regional

3.7 | Deprioritisation of formal swimming lessons

Parents/carers identified factors influencing their decision to deprioritise formal swimming lessons for their child. These included: perceptions of the importance of formal swimming lessons; believing their child is not ready for lessons; lessons not being a priority and their child disliking or fearing swimming.

Parents/carers of 56 (1.3%) children indicated that they did not enrol their child in formal lessons as they believed their child already had foundational aquatic skills. This was largely due to the parent/ or another family member teaching the child to swim, often in a pool at home or the home of family member or friend. Few of these participants reported that the parent/carer, or family member had a swim teacher qualification. Parents/carers of these children commonly acknowledged that their teaching was limited to water familiarisation and basic skills only and suggested that their intention for enrolling their child in formal lessons at the time of voucher creation was to learn proper swimming techniques (e.g., stroke correction).

> I taught him to swim in our pool and in the ocean. He can swim for survival but now he is ready to swim for speed
>
> Parent/carer of child (6 years), Quartile 4 (Least disadvantaged), Metropolitan

Some participants did not enrol their child in swimming lessons as they believed their child was not yet ready. Related factors included: the child lacking confidence in the water; and the child's tendency to misbehave in lessons, not listen to a swim teacher, or not understand the swim teacher instructions. These qualitative responses were in addition to two pre-selected options provided as a part of the registration form, including 'I thought my child was too young to participate in swimming lessons' and 'I did not think swimming lessons were important for preschool-aged children'.

> I thought she was too young to learn swimming. I only started learning swimming in primary school
>
> Parent/carer of child (3 years), Quartile 2, Metropolitan

> Was over 12 months ago but did not have attention span to stay engaged for a whole lesson
>
> Parent/carer of child aged 4 years, Quartile 3, Metropolitan

A lack of understanding of swimming lessons as a safety skill, and instead its characterisation as another 'extracurricular activity' was another contributing factor to parents/carers' decisions to not enrol their child in lessons. This is supported by the 104 (2.5%) parents/carers who suggested that their child was already engaged in other sports, limiting their ability to participate in swimming. Some participants also suggested their distance from any body of water meant swimming was not a priority, suggesting that their child was at low risk of drowning.

> She had other sporting activities (ballet then karate)
>
> Parent/carer of child (5 years), Quartile 1 (Most disadvantaged), Metropolitan

> No one we know has a pool / he is not around bodies of water. He has very good awareness of the dangers of water etc. Now that he is older, we would like him to learn the skill for life
>
> Parent/carer of child (5 years), Quartile 4 (Least disadvantaged), Metropolitan

A further group of participants noted that their decision to not enrol their child in swimming lessons in the past 12 months was driven by their child's dislike of swimming. Related factors included the child's fear of water, pools, swimming and drowning and a negative past experience in a pool or lesson.

> We tried but [she] had a fear of the water which caused lots of anxiety
>
> Parent/carer of child (4 years), Quartile 2, Metropolitan

> [She] had attended swimming lessons in 2020 and had a bad experience resulting in fear of lessons
>
> Parent/carer of child (4 years), Quartile 4 (Least disadvantaged), Metropolitan

4 | DISCUSSION

Study findings demonstrate that there are multiple factors impacting uptake of swimming lessons in preschool aged children in NSW, including geographic location, socioeconomic status, cultural and linguistic background and family structure. Many of these factors were interconnected, with participants consistently identifying these barriers together. For example, parents of children with disability commonly identified *affordability*; *lack of or poor availability of schools, classes, or teachers suitable for children with disability*; and *COVID-19* together.

These factors may limit the impact of First Lap in addressing the affordability of swimming lessons and increasing uptake of swimming lessons in preschool aged children, particularly from priority populations. To increase participation equitably, existing barriers must be addressed. These include poor availability and flexibility of swimming lessons, especially for priority populations; lack of support for parents/carers to fulfil supervision requirements; poor awareness of the importance of swimming lessons for preschool aged children; and lack of continuity of swimming lessons for children in OOHC. As with many public health challenges, addressing these interrelated barriers to swimming participation in preschool aged children will require cross-sector collaboration and ongoing, robust evaluation of initiatives.

4.1 | Availability and flexibility of swimming lessons, including for priority populations

The findings demonstrate that there is inconsistent availability of swimming classes and teachers across NSW, especially in regional and remote areas. This includes poor availability of classes tailored to support the unique needs of children with disability or health needs, and those targeted to increase uptake of swimming classes in priority populations. Previous research indicates that, except for epilepsy, children with disabilities and pre-existing medical conditions can engage in swimming lessons without an increased risk of drowning.[20] Children outside metropolitan areas were also less likely to have access to indoor or heated aquatic centres, limiting participation in swimming during colder months of the year, consistent with other research.[21] While availability was undoubtedly impacted by COVID-19 restrictions,[3] the results suggest that aside from the pandemic, availability has been limited due to factors including facility renovations, disasters and inadequate local resources. There is a need to increase the number of aquatic centres, including indoor centres in regional and remote NSW. This will need to be coupled with initiatives aimed at increasing the availability of swimming teachers, including those with the requisite skills to teach children with disabilities or with health needs.[22] These might include employment pathway programs, funding training, and ensuring mutual recognition of qualifications across states and territories.[5] It is acknowledged that this need may need to be balanced with the availability of financial resources and localised demand. Further, with research highlighting the importance and effectiveness of school-based swimming lessons,[23] the inclusion of basic water safety and swimming skills in day care and preschool curricula could be considered. While swimming classes are offered by some day care and preschool centres in NSW,[24] this is on a case-by-case basis.

Related to availability, the distance to swimming classes and lack of transport options (including public transport options), especially for children in regional and remote areas was identified as a barrier to participation. Initiatives should be considered, implemented and evaluated that seek to address these structural barriers, for example, transport for children to a swim school directly after preschool and grants for the installation of smaller above ground pools to enable local swim instructors to facilitate private or small group classes (especially in small remote communities). One such program is the Remote Pools Project in the Northern Territory, through which the YMCA work in partnership with local schools, early childhood centres and other organisations to engage and employ local people to deliver aquatic education programs.[25] The cost and impact effectiveness of these programs, and similar initiatives, should be evaluated to inform related policy decisions.

Finally, the inflexibility of swimming classes can further deter parents/carers from enrolling their preschool aged child. This inflexibility relates to the hours at which classes are scheduled, the number of available options in the week to enable greater choice, the ability to enrol siblings in the same or consecutive classes, and the duration and nature of the class package. While some of the interventions aimed at improving availability and accessibility of classes will also improve their flexibility, swim school delivery models may need to be reviewed to enable increased uptake. Providers of classes may need to be incentivised to offer classes outside of school and working hours and enable parents/carers of multiple children to enrol siblings in the same or consecutive classes to minimise one child 'missing out' due to inconvenience. Further, while some flexibility is typically offered to children who miss a swimming lesson due to family circumstances or health reasons in the form of makeup lessons, the rigid nature of attendance patterns and loss of money for lessons not attended, was identified by parents/carers in this study as an enduring barrier. Additional research is required to understand the existing constraints experienced by swimming providers in providing flexibility, how flexibility is commonly provided and how these factors can be balanced with the needs of parents/carers. Approaches to enabling greater flexibility should be balanced with information for parents/carers

recommending that their child swims on a consistent basis, at least once per fortnight, to increase their likelihood of achieving higher levels of swimming skills.[10]

4.2 | Support for parents/carers to fulfil in-pool participation requirements

Some group swimming classes in Australia for young children or children new to swimming require their parent to be in the pool to supervise and support their child during the session. This can support the child in feeling safe in the pool and can help to reduce the likelihood of a negative aquatic experience.[10] However, a common factor influencing non-participation for preschool aged children in this study was their parent being unable to fulfil these participation requirements due to supervision needs of other siblings. Some aquatic centres in NSW (typically in metropolitan areas) offer child-minding or creche services co-located with the pool, which provide parents/carers with a solution to this barrier.[26,27] It would be valuable for more aquatic centres to offer creche or child-minding services, with evaluation of these services investigating their effectiveness in minimising parents/carers' concerns around supervision requirements for other children not in the pool, and reviewing the resulting uptake of swimming lessons for all eligible children in the family. Such evaluations should also seek to understand the most appropriate price for these services to encourage uptake of classes.

4.3 | Awareness of the importance of swimming lessons for preschool aged children

The responses from parents/carers indicated varying levels of understanding of the importance of swimming lessons for preschool aged children. A common reason for non-participation related to parents/carers believing that their child was not ready for formal lessons as they were 'too young'. While there is little research available, some studies suggest that children should commence formal swimming lessons between the ages of 4 and 7 years, as this is the age at which they can most effectively learn basic swimming skills and water confidence.[28–30] The research indicates that starting earlier than this age may not yield competency at a younger age, and may have contributed to the commentary from some parents/carers in this study that their child failed to make progress in swimming lessons at a younger age. This can be detrimental where these parents/carers, some motivated by the opportunity to save money, decide to discontinue formal lessons and self-teach their child. Some researchers also argue that starting too early could result in young children, being overexposed to water and becoming overconfident, ultimately increasing the risk of drowning.[31] Noting the age of some of these studies, it is recommended that contemporary research is conducted to understand the 'optimal' age for commencement of formal lessons in the Australian context, and whether water familiarisation under this age has an association with drowning risk.[32] This information should be disseminated via health promotion campaigns to parents/carers and should inform eligibility criteria for First Lap and other swimming voucher programs—possibly resulting in an increase in the minimum age from 3 years to the 'optimal age'.

Additionally, some parents/carers suggested that their distance from larger bodies of water (e.g., pools, beaches) resulted in swimming lessons for their child being a lower priority. However, with the vast majority of drownings incidents in young children occurring in and around the home, including in bathtubs and portable pools with water no deeper than 30 cm, this misconception could contribute to increased risk for the children of these parents/carers.[3,9,33,34] It is important that these messages are continually communicated to parents/carers across Australia, including through initiatives like the Keep Watch program, and the effectiveness of these campaigns are evaluated.[35,36]

Other parents/carers indicated that they believed their child had achieved an acceptable level of proficiency in swimming through time spent in a pool at home or at the home of a family member or friend. This suggests that there are diverse perspectives from parents/carers as to the importance of formal swimming lessons to develop aquatic skills (compared to foundational water familiarisation). International research has shown that targeted education is needed for parents/carers to improve their accuracy in judging their child's swimming abilities and estimating supervision needs.[37] This study recommended the inclusion of a parent-focused component in learn to swim classes that provides parents/carers with detailed tracking of swim skills. Further research is required to understand what level of aquatic skills parents/carers equate to 'proficiency' in the Australian context and the value of parent-focused components within classes. While this may drive improvements in parental awareness once enrolled in a class, these messages must also be embedded within national water safety campaigns to increase awareness prior to enrolment and encourage enrolment.

4.4 | Continuity of swimming lessons for children in OOHC

Further, as discussed earlier, consistency is key to achieving higher levels of swimming skills. This can be challenging for children in the NSW Family and Community Services' OOHC program, who can live with foster carers for varying periods of time until they are able to return to their own family safely. As these children move between homes, their schedules are inconsistent, placing them at high risk of missing swimming lessons. This is supported by responses from parents/carers of children in the dataset who were not sure about the swimming history of the child in their care. Little research is available on interventions that effectively support children in OOHC in attaining swimming skills. Further studies should explore whether partnerships NSW government, foster carers, and swim school providers may be established to enable flexible access in classes for children in OOHC, with consistent reporting of the child's swim skills to enable their movement between swim schools if required (i.e., if the distance to the former school makes it and unfeasible option). Some organisations and swim school providers in Australia have recognised this

need, providing free or discounted swimming classes to children in OOHC.[38] The value of such initiatives should be evaluated to inform relevant policy decisions.

5 | STRENGTHS, LIMITATIONS AND FUTURE OPPORTUNITIES

While previous research has examined barriers to accessing swimming classes for Australian children, few studies have examined barriers qualitatively on this scale, from a state-wide program. The data represent free text responses from a question included in the registration for the First Lap voucher and is therefore a unique dataset, not previously reviewed. It is also the largest known dataset of its nature in Australia to date. As a result, the findings from this study will support an improved understanding of the intertwined factors influencing the decision of parents/carers of preschool aged children in NSW to enrol their child in swimming lessons. This may advance further research into these factors and will support policymakers in reviewing health promotion interventions to increase equitable uptake of swimming lessons.

The study is, however, not without limitations. The study population is a convenience sample and is not representative of all preschool aged children in NSW. Further, the 'Other' option provided parents/carers with an opportunity to qualitatively describe additional barriers to those in the pre-selected options, however, most of the 4191 responses received were short responses. These data were supported by pre-selected options where appropriate. More in-depth qualitative interviews may be required to better understand the barriers identified in this study. These will be undertaken as a part of the broader evaluation of First Lap.[15] Additionally, while several of the identified barriers may be universal across states and territories in Australia, and even internationally, further research is required to understand the contextual factors across the other jurisdictions that may support or differ from those identified in this study. There is also merit in repeating this study in a future program enrolment period to understand how the easing of COVID-19 risk and restrictions impact the factors (and their relationships) identified.

6 | CONCLUSION

This study provides crucial insights into the key factors influencing non-participation in swimming lessons in preschool aged children in NSW. It identified seven intertwined factors including: child's disability or health needs; affordability of swimming lessons; family or personal circumstances; lack of or poor access to swimming lessons; parent/carer availability, including to fulfil supervision requirements; COVID-19 and deprioritisation of formal swimming lessons due to parent/carer perceptions relating to its importance. The study confirms that there is a need to address the structural barriers that contribute to non-participation to increase uptake, particularly in at-risk or priority populations. Evidence-based policy initiatives should seek to address as a priority the availability and flexibility of swimming lessons, including for priority populations; complexities associated with supervision requirements; poor awareness of parents/carers of the importance of swimming for preschool aged children and the lack of continuity of swimming for children in OOHC. Any initiative implemented should be supported by robust evaluation to inform an understanding of its costs and the associated effectiveness in increasing uptake of swimming lessons by preschool aged children. By doing so, policymakers can contribute to reducing the risk of fatal and non-fatal drowning incidents in young children.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

Ethics approval granted by the University of New South Wales Human Research Advisory Panel (approval ID: HC220282).

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APPENDIX A: Registration form questions (excerpt from full registration form)

TABLE A1 Registration questions relating to reasons for the child's non-participation in swimming lessons in the previous 12 months.

Question	Available responses
1. Has your child participated in a learn to swim program in the last 12 months?	☐ Yes ☐ No ☐ Prefer not to say
2. Why have they not participated in the last 12 months?	☐ The cost of swimming lessons is too expensive ☐ I thought my child was too young to participate in swimming lessons ☐ I did not think swimming lessons were important for preschool-aged children ☐ There were no learn to swim schools near where I live ☐ Covid-19 ☐ Other
2a. If other, please explain	[Free text response]

APPENDIX B: Codes for 'Other' responses to reasons for non-participation in swimming lessons

TABLE B1 Codes for 'Other' responses to reasons for non-participation in swimming lessons in the previous 12 months.

Codes by theme	Number (#)	Percentage (%)
Child's disability or health needs		
Child's disability		
Autism Spectrum Disorder	68	1.6
Sensory needs	25	0.6
Developmental delays	20	0.5
Speech or language delay	9	0.2
Attention Deficit Hyperactivity Disorder	6	0.1
Hearing loss or hearing impairment	7	0.2
Disability (not otherwise specified)	111	2.6
Child's medical or health needs		
Ear health	255	6.1
Skin condition or infection	53	1.3
Surgery	48	1.1
Child needs individual or specialist lessons	23	0.5
Cancer	20	0.5
Allergies	13	0.3
Anxiety	13	0.3
Specialist advice not to swim	11	0.3
Asthma	7	0.2
Epilepsy	4	0.1
Participating in hydrotherapy	2	0.0
Medical or health reasons (not otherwise specified)	202	4.8
Affordability		
Affordability	76	1.8
COVID-19		
COVID-19	177	4.2
COVID-19 vaccination status	4	0.1

(Continues)

TABLE B1 (Continued)

Codes by theme	Number (#)	Percentage (%)
Family or personal circumstances		
Previously living overseas	104	2.5
Family relocating (country, state, city, house)	97	2.3
Custodial arrangements and parent separation	34	0.8
Child recently came into the care of current carer	28	0.7
Holiday or travel	15	0.4
Domestic and family violence	10	0.2
Homeless or challenging living situation	3	0.1
Family or personal reasons (not otherwise specified)	31	0.7
Access to swimming lessons		
Lack of or poor availability of schools, classes, or teachers	755	18.0
Lack of or poor availability of schools, classes, or teachers suitable for children with disability	35	0.8
Swim school class schedule	225	5.4
Distance to swim school or class	27	0.6
Season (winter)	27	0.6
Transport to and from school	21	0.5
Parent/carer availability, including to fulfil participation requirements		
Busy or lack of time	324	7.7
Multiple children	300	7.2
Parent or carer studying or working	245	5.8
Single parent or carer	35	0.8
Participation requirements (in-pool)	112	2.7
Experiencing death, illness, or disability	50	1.2
Unable to take child to class (not otherwise specified)	5	0.1
Deprioritisation of formal swimming lessons		
Child not interested, not willing, or dislikes swimming	231	5.5
Fear or water, pools, swimming, or drowning	308	7.3
Negative past experience	40	1.0
No progress or development in past experience	20	0.5
Other activities or priorities	104	2.5
No or limited access to pool or water	6	0.1
Child not ready	81	1.9
Child behaviour, listening, or comprehension	27	0.6
Child not toilet trained	5	0.1
Lack of confidence	47	1.1
Language barrier	3	0.1
Child has foundation aquatic skills (parent/carer perception)	56	1.3
Parent, carer, or family member teaching	388	9.3
Parent, carer, or family member teaching (qualified)	23	0.5
Pool at home or home of family or friend	246	5.9
School swim lessons	3	0.1
Did not organise (reason not specified)	94	2.2
Child started school	29	0.7
Trialled new school or changing schools	3	0.1
Not applicable		
Not applicable	10	0.2
Total codes	5361	