A Survey of Applied Behaviour Analysis Practitioners in Australia: Education, Training, and Barriers to Professional Practice

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Abstract: In Australia, the prevalence of autism has increased over the past decade. This has resulted in increased demand for safe and effective interventions and supports. Many evidence-based interventions for individuals with autism have been derived from the scientific discipline of Applied Behaviour Analysis (ABA). However, the professional practice of ABA is not yet formally regulated in Australia, and there are no national practice standards or qualification requirements for practitioners providing ABA-based interventions. In addition, very little is known about the qualifications and experiences of those in Australia who currently design and implement ABA intervention programs, information that would assist in developing practice standards and regulations for the profession. These regulatory and knowledge gaps have the potential to impact the safety of both consumers and practitioners. The aim of the current study, therefore, was to survey those who categorised themselves as ABA practitioners and, based on the analysis of the data, answer relevant questions about the status of the profession and provide recommendations for the development of ABA as a profession in Australia.

1. Introduction

It has been argued that professional credentialing and professional regulation encourage consistency across professionals by establishing standards for practice [1]. Carr and Nosik [2] and Johnston and Shook [3] have noted that professional regulation helps protect the public by (a) identifying the minimum standards of competence for professionals who hold a specific credential, (b) ensuring professionals who hold a credential meet specific practice standards, and (c) enforcing ethical standards of practice. Currently, the only regulatory framework for ABA professionals in Australia is the North American-based Behaviour Analyst Certification Board (BACB). At present, there are 123 professionally credentialed Australian-based board-certified behaviour analysts (BCBAs) and 23 board-certified assistant behaviour analysts (BCaBAs) listed on the BACB certificant registry [4]. This represents an eightfold increase in the number of certified practitioners since 2013, suggesting that the field is rapidly growing in Australia.

The BACB certification, however, is not currently recognised by the Australian Health Practitioner Regulation Agency (AHPRA), which works in collaboration with 15 National Health boards (e.g., the Medical Board of Australia and the Psychology Board of Australia) to regulate professional practice by setting the standards and policies that all registered health practitioners must meet [5]. Nor is the BACB certification currently recognised under any self-regulating professional body similar to that of Speech Pathology Australia, a national peak body for speech and language pathologists that 'prescribes, guides and governs the clinical and ethical standards of members in their practice of speech pathology' [6].

Establishing a national system of professional regulation for ABA is important for several reasons. Applied Behaviour Analysis is a well-developed scientific discipline and specialised field of study amongst the helping professions [7]. Most undergraduate and postgraduate training programs in teaching, psychology, occupational therapy, speech therapy, and social work do not provide in-depth training in the science and practical application of ABA. By contrast, competencies associated with the science and practice of ABA, and the training required to develop them, have been clearly defined by the behaviour-analytic community via the BACB Task List and the establishment and verification of post-graduate level courses [8]. It has been argued that competence in ABA cannot be acquired through nonacademic training experiences because those experiences tend to lack many important features, such as prerequisites for admission, planned and verified coursework aligned to defined competencies in ABA, and supervised interactions with recipients of ABA-based services via internship or fieldwork experiences [9]. By contrast, academic training programs in ABA, in Australia and worldwide, have been developed that do include these features [10]. Although Australian ABA practitioners will be able to obtain BACB certification for the foreseeable future [11], establishing a national system of professional regulation is important as it will (a) further ensure that ABA-based services are delivered by professionals in Australia who are working within their scope of practice and competence and (b) help consumers of such services identify those professionals with the requisite academic and professional training experiences to provide safe and ethical ABA-based services.

1.1. Applied Behaviour Analysis and Autism

In Australia, the need for the professional regulation of ABA is strengthened by the significant demand for service providers to support individuals with disabilities, including learning and communication disabilities, intellectual and developmental disabilities, and autism spectrum disorder (ASD). Of note, in 2019, the Australian Bureau of Statistics [12] reported that over half of Australians diagnosed with ASD were not receiving the support they needed. These data are concerning, considering that there are over 200,000 Australians with a diagnosis of ASD, with an estimated 68.9% of them also having a severe or profound limitation in communication, self-care, or mobility. Given the 25% increase in prevalence of ASD in Australia since 2015 and the need for timely access to effective services, the Australian Government commissioned several reports to identify the level of evidence for various interventions and supports for individuals with ASD [13–15]. The results of these commissioned reports supported the value of ABA-based interventions for individuals with ASD. For example, in 2012, an Australian government report indicated which interventions should be eligible for funding under the Helping Children with Autism (HCWA) funding scheme. The report, titled *Early Intervention for Children with Autism Spectrum Disorders: 'Guidelines for Good Practice'* [15] classified interventions for autism as eligible for funding based on established research, emerging research, or when used in collaboration with other eligible therapies, and not eligible for funding based on a lack of research or evidence of harm. The only interventions that were deemed eligible for HCWA funding based on *established* research were those based on ABA, including Early Intensive Behavioural Intervention (EIBI). As a result, families of young children with ASD were able to access a total of A$12,000 AUD of HCWA funding across two years for ABA-based early intervention programs.

In 2014, the Australian government introduced the National Disability Insurance Scheme (NDIS) to replace existing sources of funding for disability supports across Australia (including HCWA). The NDIS was a new way of providing funded supports to individuals with disabilities and was underpinned by the principle that NDIS participants should be provided with choice and control about how to use their funding, based on their unique needs, preferences, and goals. It was anticipated that the NDIS would eventually provide more than $22 billion in funding a year to an estimated 500,000 Australians who have permanent and significant disabilities [16], including ASD. Funds provided by the NDIS were designed to help individuals to pursue their goals, increase their independence, and increase their active community participation [17]. Similarly, the Council of Autism Service Provider's *Applied Behavior Analysis Treatment of Autism Spectrum Disorders: Practice Guidelines for Healthcare Funders*

and Managers [7] states that ABA-based programs should (a) place importance on the context of the individual's behaviour and the value of the behaviour to the individual, the family, and the community and (b) should use principles and practices with demonstrated empirical support of effectiveness such that the individual's health, independence, and quality of life are improved. As autism spectrum disorder was the largest primary disability category for the NDIS [18] the Australian Government sought further information about the most effective forms of support for people with ASD, particularly for young children.

In 2016, the National Disability Insurance Agency (NDIA), the Australian government department responsible for overseeing the implementation of the NDIS, sought expert opinion regarding best practice intervention for children with autism and related conditions. In their 2016 report titled *Autism spectrum disorder: Evidence-based/evidence-informed good practice for supports provided to preschool children, their families and carers*, Roberts et al. [14] recommended (a) that children who received a diagnosis of ASD receive 20 h per week of early intervention (b) in programs with staff to child ratios between 1:1 and 1:3 as determined by the child's individual program, (c) that use staff trained in working with individuals with autism (d) who deliver programs involving allied health professionals in individual planning, program implementation and review, and (e) using sufficiently flexible supports such that supports could be adapted and modified in line with the child and parents' strengths and needs. These recommendations were deemed consistent with EIBI.

Surprisingly, however, the NDIS endorsed a different model of early childhood intervention. The endorsed model largely recommended to families was a low intensity, eclectic keyworker model. The keyworker model is predicated on the notion that parents are best placed to deliver early intervention supports to their child within the context of naturally occurring daily routines and activities. A key worker is defined as an individual who links the family with a team of practitioners who provide clinical input and support. These guidelines, known as *The National Guidelines for Best Practice in Early Childhood Intervention* [19], have been used by the NDIS as the basis for their early childhood approach for children aged 0 to 6 years of age. Anecdotally, families have reported that these guidelines have been used by NDIS representatives as a reason for denying requests for funding for ABA-based therapies, including EIBI, on the grounds that EIBI is inconsistent with the *National Guidelines*. This has resulted in families utilising the Administrative Appeals Tribunal (AAT), an independent body that conducts reviews of decisions made by Australian Government ministers, departments and agencies under Commonwealth law [20]. To date, three cases related to the provision of NDIS funding for ABA-based programs, specifically for young children with ASD, have been heard by the Tribunal [21–23]. In all three cases, the Tribunal determined that ABA-based interventions, specifically EIBI, were a reasonable and necessary support in accordance with section 34 of the NDIS Act. Specifically, the Tribunal was not satisfied that the keyworker model of intervention put forth by the NDIS would substantially improve the life stage outcomes for the children or be likely to reduce the cost of funding of supports for them in the long term. Rather, the Tribunal ruled that the children in all three cases would benefit from EIBI for at least one year. These rulings provided additional support for the value of ABA-based interventions for children with ASD in Australia.

1.2. Summary and Aims

Several significant developments have bolstered support for the professional practice of ABA for ASD in Australia. These include the rising prevalence of ASD, the reported need for further support to maximise independence by individuals with ASD themselves, government commissioned reports summarising the empirical evidence demonstrating the effectiveness of ABA-based interventions, the availability of funding from NDIS, Tribunal findings in favour of EIBI, and the recent increase in both the number of BCBAs and university training courses in ABA.

The developments described above appear to highlight the need for professional regulation of ABA in Australia as a matter of priority. Of significance, no research has been conducted to identify the education and training experiences of professionals who design, supervise, and deliver

ABA-based programs in Australia. This information is important as it can be used to inform efforts to create Australian-specific ABA practice standards that describe the requisite education and training experiences of professionals who deliver ABA-based programs. Therefore, the first purpose of this study was to identify the education and training experiences of professionals who design, supervise, and deliver ABA-based programs in Australia.

In addition, there was a need to identify the barriers that professionals face when delivering ABA-based services. A better understanding of the barriers that ABA practitioners faced when delivering ABA-based programs in Australia is of importance because such knowledge can be used by peak bodies, such as the BACB, the Association for Behavior Analysis International, and the Association for Behaviour Analysis Australia, to allocate resources to address the most common practice challenges as part of efforts to foster the development and growth of ABA in Australia. Therefore, the second purpose of this study was to identify the most common barriers that ABA practitioners faced when designing, supervising, and delivering ABA-based programs in Australia. Finally, the third purpose of this study was to, based on the analysis of the data, to suggest recommendations for the development of ABA as a profession in Australia.

2. Materials and Methods

2.1. Design

A cross-sectional survey design was used to explore the educational and training experiences of professionals who designed, supervised, and delivered ABA-based programs in Australia (or who did so within the past year) and to record practitioners' understandings of the barriers related to the professional practice of ABA in Australia. The survey consisted of a mix of closed- and open-ended questions. Data were analysed using a mixed-method approach.

2.2. Participants

Participants included program supervisors and therapy assistants who currently design, supervise, and deliver ABA-based programs in Australia, or who have done so in the past year. A total of 191 program supervisors and 138 therapy assistants participated in this survey.

2.3. Procedure

Ethics approval to undertake this research was granted through Monash University's Human Research Ethics Committee (project identification number 22580). The survey was designed and administered using the Qualtrics © online survey platform. Participants were recruited through convenience sampling via social media, professional networks, and emails to Australian service providers. In the recruitment emails, service providers were provided with information about the aims of the study and invited to voluntarily distribute the survey to program supervisors and therapy assistants in their networks. In the recruitment email, a poster detailing the study was provided, as well as the direct web-link to the survey on Qualtrics. The same poster was emailed to members of the Autism Behaviour Intervention Association (ABIA) and the Association for Behaviour Analysis Australia (ABAA) and shared via the social media channels of ABIA and ABAA.

Potential participants were first asked to review the eligibility criteria, and to tick a box to indicate if they met criteria to complete the survey as a program supervisor or therapy assistant. Program supervisors were defined as practitioners who currently design and supervise ABA-based programs or have designed and supervised ABA-based programs in the past year. We asked potential survey respondents to select this option if their title was board certified behaviour analyst, allied health professional, educator, program manager, etc., but their main responsibility was to design and supervise ABA-based programs. Therapy assistants were defined as practitioners who currently deliver ABA-based programs that have been designed and are supervised by someone else or have delivered ABA-based programs in the past year. We asked potential survey respondents to select this

option even if their title was different (for example, ABA therapist, junior therapist, senior therapist, behaviour technician, support worker, and teaching assistant), but their main responsibility was to deliver ABA-based programs. Potential participants were not required to hold a specific qualification to respond to this survey. Rather, participants were asked to review the eligibility criteria and independently determine whether or not they met the criteria to participate. Only practitioners who worked in paid positions with clients (who were not related to them) responded to this survey; parents or family members who delivered therapy to their own family member were excluded from participating in this survey. Potential participants were also excluded from this study of they (a) designed or delivered ABA-based programs in the past, but not within the past year, or (b) designed or delivered allied health or educational services, but did not use ABA-based procedures. Potential participants who resided outside of Australia were also excluded.

Next, participants were asked to read an explanatory statement describing the aims and benefits of the study, information about Monash University's ethics complaints system, and the voluntary nature of participation. Participants were then invited to electronically sign a consent form prior to answering the survey questions. Program supervisors and therapy assistants were asked to respond to 12 closed-ended survey questions, and one open-ended survey question. It was anticipated that the survey would take approximately 15 min to complete. The survey was open from the 7th of July 2020 to the 31st of July 2020.

Content Validity

Prior to administering the survey, a pilot version of the survey was completed by three parents of children who accessed ABA services in Australia, two doctoral-level BCBAs (one in Australia and one outside Australia), one Australian Education and Developmental Psychologist with more than 10 years of ABA experience, and one Australian ABA program manager. Based on feedback received from pilot participants, the wording of some questions and response options were edited for the purposes of clarity. No questions were added or removed.

2.4. Measures and Data Analysis

2.4.1. Demographics

Questions included those relating to gender, years of work experience (designing and supervising or delivering ABA-based programs), employment type, state or territory, and geographic region. For employment type, casual was defined as an employee who did not have a firm commitment in advance from an employer about how long they would be employed or the days (or hours) they would work and who did not receive annual and sick/carers leave, a permanent part-time employee was defined as an employee who generally worked less than 38 h a week but typically worked regular hours each week and received annual and sick/carers leave, and a permanent full-time employee was defined as someone who usually worked 38 h per week and received annual and sick/carers leave [24]. For the geographic region, metropolitan was defined as capital cities (e.g., Melbourne, Victoria), regional was defined as centres of population from 25,000 to 100,000 people in size (e.g., Bendigo, Victoria), and rural was defined as a centre of population of less than 25,000 people in size (e.g., Mildura, Victoria) [25]. For gender, work experience, and employment type, participants could only select one response option. For state or territory and geographic region, participants could select multiple response options (to reflect the fact that some practitioners work across different states and geographic regions). Demographic data were displayed as the total number of respondents who selected each response option, and percent of total sample.

2.4.2. Client Diagnoses

Responses to this question allowed it to be determined whether ABA-based programs were commonly delivered to individuals with a diagnosis of autism spectrum disorder in Australia. To do

so, participants were asked to select the primary diagnoses of the clients they typically served from a list 12 diagnosis types. In addition, participants were provided with an 'other' response option, and a blank text box to type in other diagnosis types that were not included in our list of response options. For this question, participants could select multiple response options (to reflect our assumptions that some professionals work with clients with different diagnoses). These data were displayed as the total number of respondents who selected each response option, and percent of total sample.

2.4.3. Methods of Obtaining Theoretical and Practical Training

An exploration of how program supervisors and therapy assistants in Australia gained their theoretical and practical training in ABA was undertaken by asking the following questions, *How did you gain your theoretical/foundational knowledge in Applied Behaviour Analysis?* and *How did you gain your practical skills in Applied Behaviour Analysis*?, by selecting from a list of ten response options. In addition, participants were provided with an 'other' response option, and a blank text box to type in other methods that were not included in our list of response options. For this question, participants could select multiple response options (to reflect our assumption that some professionals gained theoretical and practical training in multiple ways). Methods of obtaining theoretical and practical training were displayed as the total number of respondents who selected each response option, and percent of total sample.

2.4.4. Education and Credentials

The purpose of this question was to identify the highest level of education and the types of professional credentials or qualifications held by survey respondents. These data are reported separately to the demographic data because of their significance to the main aims of this study. Participants were asked to respond to the questions *What is your highest level of education?* and *What professional credentials or certifications do you currently hold?* by selecting from a list of response options. For highest level of education, participants could only select one response option. For credentials or qualifications, participants could select multiple response options (to reflect our assumption that some people held more than one professional credential or qualification). Data on highest education level and currently held credentials were displayed as the total number of respondents who selected each response option, and percent of total sample.

2.4.5. Perceived Barriers

To assess perceptions of the barriers related to the professional practice of ABA in Australia, participants were asked to respond to one open-ended survey question. Program supervisors were asked to respond to the question *What, if any, are the barriers or challenges you have experienced while designing and supervising ABA-based programs in Australia?* Therapy assistants were asked to respond to the question *What, if any, are the barriers or challenges you have experienced while delivering ABA-based programs in Australia?* Participants were provided with a text box to type in their responses.

To analyse the open-ended data, a process of inductive thematic coding was used [26]. This method was selected because (a) no a priori codes related to this research question were identified in the literature and (b) it allowed us to categorise emergent themes from participant responses. Thematic coding occurred in several steps. During Phase 1, the second author carefully read each open-ended response. A set of initial barrier categories were then developed by the second author by looking for evidence of semantic themes (i.e., the presence of key words) and latent themes (i.e., underlying meaning of responses) within in each open-ended response. For example, if a participant wrote 'not enough funding to cover the cost of the ABA program,' this was categorised into a sub-theme called 'not enough funding.' It is possible that a single open-ended response was categorised into multiple sub-themes, depending on the amount of information provided by the participant in their response. Through this process, we identified a total of 32 sub-themes for program supervisors and 27 sub-themes for therapy assistants. When a component of an open-ended response was categorised into a sub-theme, it was

given a score of 1 on the data sheet. After all components of all open-ended responses were categorised into sub-themes, the sum of scores was calculated for each sub-theme.

During Phase 2, the sub-themes were amalgamated into broader themes. To do so, the second author developed a working definition for each sub-theme, looked for commonalities between the sub-themes, developed a preliminary set of broader themes, and categorised each sub-theme into a broader theme. Following this initial categorisation, the second author developed a working definition for each broader theme and reviewed the broader themes and their definitions with the first author. The first and second author then refined the definitions of the broader themes, following a discussion of the definitions. Following this step, the second author re-categorised all sub-themes into the refined broader themes.

Interrater Reliability. Interrater reliability (IRR) data were collected during the thematic analysis at the end of Phases 1 and 2. After Phase 1, the first author read and categorised 31% of the program supervisor responses and 31% of the therapy assistant responses into the sub-themes developed by the second author, using the same method as the second author. Percent IRR was calculated using a variation of scored-interval agreement. For each open-ended participant response, the sub-codes were compared that were given a score of 1 by each rater. The total number of scored sub-themes in which the two raters agreed was divided by the total number of scored sub-themes in which the two raters agreed plus disagreed (i.e., one rater scored the sub-theme, and one rater did not) and multiplied by 100 to yield a percent agreement score for each open-ended response. This method was selected because it provided a more conservative estimate of IRR given the large number of sub-themes, thus reducing the likelihood of a high IRR score simply due to chance. Once IRR was calculated for each open-ended response included in the sample, the average IRR score was calculated.

At the end of Phase 1, average percent IRR for program supervisor responses was 73.3%. During a consensus meeting, the first and second author reviewed discrepancies and made edits to the definitions of five of the 32 sub-themes. The second author then re-scored all of the open-ended responses for program supervisors using the new definitions, and the first author scored an additional 14 open-ended responses. Following re-scoring, average percent IRR was 86% for these 14 responses. During a consensus meeting, the two raters resolved all discrepancies and reached 100% agreement. No additional changes to the sub-themes were required. For the therapy assistant open-ended responses, average percent IRR was 91%. During a consensus meeting, the two raters resolved all discrepancies and reached 100% agreement. No additional changes to the sub-themes were required.

After Phase 2, the first author read and categorised all 32 sub-themes for program supervisors and 27 sub-themes for therapy assistants into seven broader thematic categories. For each broader theme, the two raters compared each sub-theme that was categorised into a broader theme to see if they agreed or disagreed. Total interrater reliability was calculated by dividing the smaller number of agreements by the number of agreements plus disagreements and multiplying by 100 to yield percent IRR. For program supervisor sub-themes, total percent IRR was 94%, with only two disagreements. For therapy assistant sub-themes, IRR was 96%, with only one disagreement. During a consensus meeting, disagreements were reviewed, and 100% agreement was reached. During this meeting, a decision was made to eliminate one sub-theme that only reflected one participant's response, due to lack of clarity around the meaning of the response.

2.5. Data Screening

At the conclusion of data collection, the survey data were screened for anomalies and missing data. At this stage, it was noted that the survey was not programmed to force participants to answer every question. That is, participants could skip a question by leaving it blank, and only respond to a subset of questions. Rather than only including data for participants who answered every question, it was decided to include all of the responses for each question in our analysis of the data. Because the total number of responses differed between participant groups (program supervisors versus therapy assistants) and survey questions, the total number of responses for each participant group for each

question at the top of each table was included. This number was used as the denominator to calculate percent of responses for each question.

3. Results

3.1. Demographics

Participant demographic information is depicted in Table 1. Ninety percent of the program supervisors and 94% of the therapy assistants who responded to the survey were female. Most respondents in both groups, but notably in the therapy assistant group (60%), reported having only 1–2 years of work experience, with a smaller percentage of respondents having 3–5 years of work experience.

Table 1. Participant demographics.

	Program Supervisors	Therapy Assistants
Gender	*n* = 152	*n* = 105
Female	136 (89.5%)	99 (94.3%)
Male	16 (10.5%)	6 (5.7%)
Other	0	0
Years of Experience	*n* = 144	*n* = 91
1–2	46 (31.9%)	55 (60.4%)
3–5	42 (29.2%)	26 (28.6%)
6–10	27 (18.8%)	9 (9.9%)
More than 10 years	29 (20.1%)	1 (1.1%)
Employment Type	*n* = 142	*n* = 87
Casual	–*	29 (33.3%)
Permanent full time	–*	19 (21.8%)
Permanent part time	–*	13 (14.9%)
Sole trader (independent)	13 (9.2%)	24 (27.6%)
Private provider	90 (63.4%)	–*
Company owner (sole or in partnership)	22 (15.5%)	–*
Public (government) provider	12 (8.5%)	–*
Other	5 (3.5%)	2 (2.3%)
State or Territory	*n* = 151	*n* = 105
Victoria	64 (42.4%)	61 (58.1%)
New South Wales	53 (35.1%)	29 (27.6%)
Queensland	22 (14.6%)	4 (3.8%)
South Australia	14 (9.3%)	8 (7.6%)
Western Australia	14 (9.3%)	2 (1.9%)
Australian Capital Territory	11 (7.3%)	2 (1.9%)
Northern Territory	3 (2.0%)	0
Tasmania	0	0
Geographic area	*n* = 151	*n* = 105
Metropolitan	140 (74%)	99 (90%)
Regional	40 (21%)	7 (6%)
Rural	9 (5%)	4 (4%)

* Note: dashes indicate that participants were not given that response option.

The majority of therapy assistants reported being employed on a casual basis (33%), followed by employment as a sole trader (28%). Less than half of the therapy assistants who responded reported being employed in a permanent part-time or full-time position. The majority of program supervisors reported being employed in private practice (63%) rather than in the public sector. A relatively small number of program supervisors (16%) reported owning and operating their own business. The percentage of program supervisors working as sole traders was lower than the percentage of therapy assistants, suggesting that secure job opportunities were more readily available to program supervisors

in Australia. However, program supervisors were not asked to report their employment status as casual, permanent part time, or permanent full time, so these results should be interpreted cautiously.

The vast majority of program supervisors and therapy assistants who responded to the survey reported to be located in the states of Victoria (program supervisors = 42%; therapy assistants = 58%) and New South Wales (program supervisors = 35%; therapy assistants = 28%). The majority of program supervisors and therapy assistants reported working primarily in metropolitan regions of Australia, which is also consistent with Australia's overall population distribution. However, few if any practitioners who deliver ABA-based services in Australia are working in more regional and remote parts of the country, where services in general are noted to be scarce [27].

3.2. Client Diagnoses

Nearly all of the survey respondents reported working with clients diagnosed with an autism spectrum disorder (ASD; see Table 2). Program supervisors also commonly reported working with clients diagnosed with intellectual and developmental disabilities (62%), behavioural and attentional difficulties (60%), and speech, language, and communication disorders (55%). Therapy assistants primarily reported working with clients with ASD, but also reported working with clients with behavioural and attentional difficulties (29%) and speech, language, and communication disorders (32%). These data suggested that ABA is commonly being delivered as an intervention for individuals with ASD in Australia. However, the professional practice of ABA in Australia is not limited to only individuals with ASD. Many program supervisors and therapy assistants indicated that they commonly work with clients who have multiple diagnoses or other developmental disabilities, as well as individuals with mental health conditions and other conditions such as acquired brain injury and dementia.

Table 2. Diagnoses of clients served by Australian program supervisors and therapy assistants.

	Program Supervisors (*n* = 139)	Therapy Assistants (*n* = 87)
Autism spectrum disorder	138 (99.3%)	86 (98.9%)
Intellectual and developmental disability	86 (61.9%)	16 (18.4%)
Behavioural and attentional difficulties (e.g., ADHD)	84 (60.4%)	25 (28.7%)
Speech, language and communication disorders (e.g., dyspraxia)	77 (55.4%)	28 (32.2%)
Mental health conditions (e.g., anxiety or depression)	46 (33.1%)	9 (10.3%)
Learning disabilities (e.g., dyslexia)	35 (25.2%)	10 (11.5%)
Trauma and stressor-related disorders (e.g., PTSD)	27 (19.4%)	4 (4.6%)
No formal diagnosis	20 (14.4%)	6 (6.9%)
Obsessive compulsive disorder	13 (9.4%)	3 (3.4%)
Acquired brain injury	12 (8.6%)	3 (3.4%)
Movement disorders (e.g., Tourette syndrome)	9 (6.5%)	1 (1.1%)
Dementia	4 (2.9%)	0
Other	2 (1.4%)	0

3.3. Methods of Obtaining Theoretical and Practical Training

Table 3 depicts the different ways that participants reported gaining their theoretical and practical training in ABA. For both program supervisors and therapy assistants, the most commonly reported method for obtaining both theoretical and practical training in ABA was through direct ABA-based therapy work in Australia, although this was somewhat higher for practical training than for theoretical training. Program supervisors also reported gaining their theoretical training primarily through supervised fieldwork or practicum experiences completed in Australia (46%), through books, the internet, or other self-taught methods (45%), through university coursework completed in Australia (44%), and from university coursework completed overseas (42%), and gaining their practical training through supervised fieldwork or practicum experiences completed in Australia

(48%), through books, the internet, or other self-taught methods (4%). Therapy assistants also reported gaining their theoretical training primarily through books, the internet, or other self-taught methods (39%), through training courses offered by service providers in Australia (38%), and through university coursework completed in Australia (32%), and gaining their practical training through training courses offered by service providers in Australia (48%), through books, the internet, or other self-taught methods (28%), through supervised fieldwork or practicum experiences completed in Australia (22%), and through training courses offered by a peak body (e.g., ABIA) in Australia (22%).

Table 3. Methods of obtaining theoretical and practical training in ABA by Australian program supervisors and therapy assistants.

	Program Supervisors (n = 142)		Therapy Assistants (n = 92)	
	Theory	**Practice**	**Theory**	**Practice**
Through direct ABA therapy work in Australia	84 (60%)	105 (74%)	59 (64%)	77 (84%)
Supervised fieldwork or practicum completed in Australia	65 (46%)	68 (48%)	14 (15%)	20 (22%)
Self-taught (books, internet, talking to other people)	64 (45%)	57 (40%)	36 (39%)	26 (28%)
University coursework taken in Australia	63 (44%)	30 (21%)	29 (32%)	14 (15%)
University coursework taken overseas (or online, from a University outside of Australia)	59 (42%)	20 (14%)	34 (4%)	3 (3%)
A training course offered by a service provider in Australia	38 (27%)	34 (24%)	36 (38%)	44 (48%)
Through direct ABA therapy work overseas	34 (24%)	47 (33%)	6 (7%)	7 (8%)
A training course offered by a peak body or provider outside of Australia	33 (23%)	15 (11%)	22 (24%)	14 (15%)
Supervised fieldwork or practicum completed overseas	31 (22%)	36 (25%)	6 (7%)	5 (5%)
A training course offered by a peak body organisation in Australia	15 (11%)	9 (6%)	14 (15%)	20 (22%)
Other	5 (4%)	9 (6%)	1 (1%)	2 (2%)

3.4. Education and Credentials

The highest education level and professional credential and qualifications held by participants is depicted in Table 4. Nearly all program supervisors reported having a bachelor's degree or higher, with the majority having a master's degree (68%). Program supervisors most commonly reported being professionally credentialed as a BCBA (31%), followed by being registered in Australia as a behaviour support practitioner (23%), having no formal credentials or qualifications (16%), or being a registered teacher or educator (15%). The majority of therapy assistants reported having a bachelor's degree (59%). Therapy assistants most commonly reported holding no professional credentials or qualifications (49%), followed by being a registered behaviour technician (18%), and a registered teacher or educator (7%).

Table 4. Education and credentials of Australian program supervisors and therapy assistants.

	Program Supervisors	Therapy Assistants
Current highest education level	n = 152	n = 103
High school diploma	0 (0%)	9 (9%)
Bachelor's degree	27 (18%)	61 (59%)
Graduate diploma/certificate	11 (7%)	17 (17%)
Master's degree	104 (68%)	15 (15%)
Doctoral degree	7 (5%)	1 (1%)

Table 4. *Cont.*

	Program Supervisors	Therapy Assistants
Current professional credential(s)	*n* = 146	*n* = 94
Board-certified behaviour analyst	57 (31%)	0 (0%)
Behaviour support practitioner	33 (23%)	3 (3%)
None	24 (16%)	49 (49%)
Registered teacher or educator	22 (15%)	7 (7%)
Generally registered psychologist	12 (8%)	2 (2%)
Board-certified assistant behaviour analyst	7 (8%)	2 (2%)
Counsellor	4 (2%)	2 (2%)
Educational and developmental psychologist	4 (2%)	1 (1%)
Speech and language therapist	4 (2%)	1 (1%)
Registered behaviour technician	3 (2%)	18 (18%)
Clinical psychologist	2 (1%)	0 (0%)
Occupational therapist	2 (1%)	2 (2%)
Provisionally registered psychologist	2 (1%)	2 (2%)
Social worker	1 (0.5%)	1 (1%)

3.5. Perceived Barriers

The thematic categories, definitions of barriers, and frequency with which barriers related to each thematic category were identified by program supervisors and therapy assistants in their open-ended responses are depicted in Table 5.

Table 5. Thematic categories and definitions of barriers, and frequency with which barriers in each thematic category were identified by program supervisors and therapy assistants.

Theme	Barriers	Program Supervisors *n* = 104	Therapy Assistants *n* = 59
Education and training	Initial education and training and ongoing supervision and professional opportunities are inadequate, difficult to access and costly.	77 (74.0%)	34 (57.6%)
Collaboration with parents and other professionals	Lack of support for and/or understanding of ABA practice and program components from parents, teachers, and allied health practitioners (e.g., speech therapist), which makes it difficult to achieve consistency of implementation across people and settings and makes it difficult to collaborate when working as part of a multi-disciplinary team.	70 (67.3%)	18 (30.5%)
Government support	A lack of understanding or a misunderstanding of ABA-based programs within government organisations, which means that ABA-based programs are not recommended and/or are not adequately funded by government bodies (e.g., NDIS).	60 (57.7%)	7 (11.9%)
Program implementation and fidelity	Barriers related to the direct delivery of the ABA-based program, such as lack of providers or therapists, therapist turnover, language barriers, service disruptions (e.g., COVID-19), and slow/no client progress.	43 (41.3%)	16 (27.1%)

Table 5. *Cont.*

Theme	Barriers	Program Supervisors *n* = 104	Therapy Assistants *n* = 59
Employment conditions	Aspects of the job including low pay, too little time to give to each client, unrealistic case load sizes, lack of access to resources, travel required, and lack of job security and career progression.	27 (26.0%)	26 (44.1%)
Public perceptions of ABA	Lack of public awareness and understanding of the professional practice of ABA, or negative/incorrect public perceptions of ABA.	26 (25.0%)	10 (16.9%)
Recognition and regulation of the professional practice of ABA	Lack of an Australian body to oversee professional practice, award or mandate specific qualifications, and establish practice standards. Lack of recognition of ABA as a distinct profession.	11 (10.6%)	14 (23.7%)

3.5.1. Education and Training

Issues related to education and training was the most frequently reported barrier for program supervisors. Program supervisors reported difficulties finding and receiving the supervision they required (*n* = 20), as well as concerns regarding a lack of ongoing training and professional development opportunities with high, associated costs (*n* = 16). Some also reported that there were gaps in the ABA training they had already completed (*n* = 9). Additionally, many reported that there was a lack of adequately trained ABA practitioners who are competent in their roles (*n* = 23) and had concerns with the costs and time required to train and supervise their therapist assistants (*n* = 9). Therapy assistants highlighted a need for higher quality training courses for ABA practitioners (*n* = 12), as well as more professional development opportunities and ongoing training (*n* = 6). Some felt they weren't adequately trained before starting work in the field (*n* = 8) and that their current supervision is inadequate (*n* = 8).

3.5.2. Collaboration with Parents and Professionals

Program supervisors frequently reported issues relating to collaboration with parents and other professionals. Specifically, that educators (*n* = 23) and parents (*n* = 21) did not understand or support their client's ABA-based program. This included parents "pursuing other approaches" or "trying everything all at once to try and assist their child," suggesting a lack of support for or understanding of ABA. There were also concerns raised regarding the lack of support and collaboration with other professionals, such as support workers and other allied health professionals (e.g., speech therapists; *n* = 18), including "opposition to collaboration from other professionals." Additionally, a few program supervisors reported issues relating to access to school and in-school support for their clients (*n* = 4) and that these collaboration issues resulted in a decreased ability to achieve continuity in program implementation for their clients across settings (*n* = 4). Therapy assistants reported that program implementation was sometimes hindered by educators not cooperating (*n* = 4) or by parents who did not support, participate in, or have realistic expectations about their child's program (*n* = 11). Additionally, a few therapy assistants were concerned with the lack of involvement with interdisciplinary teams as part of the design and delivery of the ABA-based program (*n* = 3).

3.5.3. Government Support

Program supervisors more frequently reported barriers related to a lack of government support than therapy assistants. Specifically, program supervisors reported a lack of government support for ABA-based interventions, including attempts to steer families away from ABA by NDIS representatives (*n* = 17). For example, program supervisors reported that "plan managers … have told families that

they cannot have ABA services" or "clients are being pushed away from ABA and towards different, less intense therapies by NDIS planners (e.g., speech or occupational therapy)." A large number of program supervisors also noted difficulties and insufficiencies in funding (n = 43) and a few reported government policies regarding restrictive practices to be negatively impacting on their programs (n = 3). Some therapy assistants also reported a lack of government support for ABA, such as inadequate funding for programs (n = 5) and no award rate for ABA practitioners (n = 2).

3.5.4. Program Implementation and Fidelity

Program supervisors highlighted that many clients did not receive the hours they required (n = 14) and that long waitlists (n = 3) and the COVID-19 pandemic (n = 3) impacted access to and implementation of services. They also reported difficulties with retaining therapy assistants (n = 13) and therapy assistants not implementing programs as planned (n = 4), illustrating barriers related to program implementation. For example, one program supervisor stated, "we teach, model, describe, shadow as much as we can, given the funding we have, but some staff did not follow through with the plan." Five program supervisors reported that the companies they worked for were not flexible enough or did not use the most-up-to date teaching and behaviour support tactics. Some therapy assistants reported disagreeing with the ABA program written for their client, expressing that the program was "too rigid" or "not individualised enough" (n = 8), or they disagreed with specific methods used within the ABA-based program (n = 3). Two therapy assistants expressed concerns that their clients were not progressing, and they were not able to find evidence to support the efficacy of their client's program. One therapy assistant also mentioned the negative effects of the COVID-19 pandemic and two mentioned high turnover rates of therapy assistants as barriers to program implementation.

3.5.5. Employment Conditions

Program supervisors and therapy assistants reported a range of different barriers related to their role and the demands placed on them. For program supervisors, these included a lack of time and large caseloads (n = 16), limited access to the resources (including research) they require (n = 5), poor pay (n = 3) and not enough opportunities to work regionally (n = 2). For therapy assistants, these included low pay (n = 6), high levels of travel required (n = 6) and lack of job security and career progression (n = 5). Additionally, they reported that the work was mentally challenging (n = 5) and they don't feel well supported in their roles (n = 3).

3.5.6. Public Perceptions of ABA

Program supervisors highlighted that negative views of ABA by the public (n = 19), or a lack of awareness of ABA by the public (n = 9) were barriers to working in the field. Some therapy assistants reported negative stigma surrounding ABA-based interventions from the public and recognised a need for better public recognition (n = 8). Two therapy assistants also mentioned that there is a misunderstanding that ABA practitioners only work with clients with ASD, and this is impacting their ability to work with broader populations.

3.5.7. Recognition and Regulation of Professional Practice

Program supervisors expressed concerns regarding the lack of regulation leading to situations such as "untrained therapists", or programs being "unethical in many instances" (n = 6), the lack of formally recognised qualifications (n = 1) and the lack of recognition of the BACB qualifications (n = 2) in Australia. One program supervisor also highlighted the need for more top-level infrastructure, and another noted the lack of state-based ABA bodies to play a role in regulating the field. Some therapy assistants specifically indicated concerns regarding the lack of regulation of practitioners (n = 2), no regulatory body (n = 1) or a lack of accountability of practitioners (n = 1). Further, therapy assistants highlighted the lack of consistency and practice standards for providers as a barrier to their work (n = 9), which might be considered an outcome of the lack of regulation. For example, one therapist

reported that "the standard of therapists has been so low and inconsistent that it has interfered with the progress of the child" and another reported that there is significant "variation in techniques and different objectives for implementing programs across therapists and clinics."

4. Discussion

This survey was the first to systematically document the education and training experiences of practitioners who design, supervise, and deliver ABA-based programs in Australia. It was also unique in that it was used to identify what practitioners determined as the barriers they faced when designing, supervising, and delivering ABA-based programs in Australia.

As to the first purpose of the study, it was found that the education and training experiences of professionals who designed, supervised, and delivered ABA-based programs in Australia were diverse. Whilst practitioners had high levels of education and some of the qualifications held by practitioners were in fields related to ABA, such as Positive Behaviour Support and Psychology, these qualifications may not have provided in-depth training in the science and professional practice of ABA. As ABA is a specialised behavioural health treatment approach, it requires specific academic and practical training [7–9,28]. The majority of practitioners in the current study reported acquiring their knowledge and skills in ABA through working on the job, rather than through an ABA training course offered by a university or peak ABA organisation. One third of therapists who responded to the survey reported learning about ABA through on-the-job training provided by service providers. Of importance, when there are no practice standards to follow, and practitioners have such varying qualifications, learning about ABA through on-the-job training may lack appropriate scope and depth which in turn may impact the fidelity and overall effectiveness of ABA-based programs, especially if service providers are not appropriately qualified.

As to the second purpose of the study, the most common barriers that ABA practitioners faced when designing, supervising, and delivering ABA-based programs in Australia were access to high quality and cost-effective training, supervision, and professional development. Practitioners in the current study indicated that their current supervision and professional training opportunities were inadequate. They highlighted a need for high-quality training programs, qualified supervisors in the field, more supervision hours and more professional development opportunities such as conferences, workshops and webinars. The need for this training was evident especially considering that survey respondents had minimal years of experience working in the field. Specifically, over half of the therapy assistants implementing programs had less than two years of experience and over half of the program supervisors designing programs had less than five years of experience.

Issues pertaining to employment conditions was the second most frequently identified barrier for therapy assistants, who highlighted poor pay, unpredictable hours of work, and a lack of career progression as barriers to their continued work in the field. Program supervisors expressed concerns about a lack of time for activities such as reviewing research related to a client programming, participating in supervision, and providing training to others due to large caseload sizes and lack of needed resources (such as access to peer-reviewed research, up-to-date assessments and curricula, and electronic data collection and analysis software). It may be that barriers related to employment conditions, as well as barriers related to accessing and participating in supervision and professional development, are linked to business practices used by employers to increase profit. In other words, activities that are more likely to generate revenue, such as the delivery of direct services to clients, are prioritised. Employing therapy assistants as contractors or in casual roles means these groups of therapists need only be paid for billable hours delivered, making these contracts more cost-effective in the short term. As activities such as staff training, supervision, and professional development don't typically generate revenue, such activities may not be offered by employers. The consequences of such practices might include unrealistic caseload sizes, little time for staff training and supervision and an increase in the turn-over of program supervisors and therapy assistants due to dissatisfaction. Each of these consequences may negatively impact the quality and fidelity of ABA-based programs

leading to less optimal client outcomes, general client dissatisfaction, and discontinuation of ABA in favour of other services. Thus, the potential risks associated with poor employment conditions are considerable. In particular, the relatively large number of therapy assistants who were employed as causal employees or sole traders raised some concerns. In particular, casual employees and those working as sole traders may leave therapy assistants without predictable hours of work, regular pay, and job security. In addition, these workers may not have access to benefits or workplace rights. It is also possible that casual employees and sole traders may have less access to 'on-the-job' training and supervision, which is of particular concern given the relatively inexperienced workforce in Australia. Such insecure and casual work may contribute to higher levels of therapy assistant turnover, which may negatively affect the quality of services and lead to feelings of consumer dissatisfaction.

Participants also reported that difficulties collaborating with parents and other professionals, lack of government awareness or understanding of ABA, and lack of understanding of ABA or negative perceptions of ABA in the wider community were also barriers to their professional practice. These barriers are likely interrelated and may influence professional practice in many ways. First, a general lack of awareness and/or negative perceptions of ABA in the wider community may result in professionals and government agencies steering families with newly diagnosed children away from ABA. Indeed, the NDIS has already endorsed a different model of early childhood intervention for children with autism to that which was recommended by the authors of government commissioned reports [13–15], one of which was commissioned by the NDIS themselves. The model recommended by the NDIS is one in which parents are supported by multidisciplinary teams to deliver a range of different interventions to their child during naturally occurring daily routines and interactions, and the primary role of the service provider is to support the family members and carers in the child's life [19]. While including parents in their child's intervention program is important and beneficial, this NDIS endorsement may increase the likelihood that families will 'try a little bit of everything' or pursue interventions for ASD that are not evidence-based and may decrease parent acceptance of or active participation in ABA-based programs. Second, negative perceptions of ABA may reduce opportunities for meaningful collaboration between ABA practitioners and parents, educators, and allied health and medical professionals. This may occur if educators or other professionals perceive ABA to be outdated, ineffective, potential harmful, or incompatible with their recommend approach. Philosophical or methodological disagreements about ABA amongst professionals may prevent individualised and potentially effective ABA-based interventions from being implemented consistently and repeatedly across people and settings and may negatively impact client participation and progress.

Shook and Favell [29] recommended that groups of ABA practitioners establish state and local professional organisations that could play a role in recognising and regulating professional practice, establishing public policy committees and guide policy-related activities, and lobbying government to influence policy related to professional practice. The authors noted that the professional organisation should emanate from an organised group of behaviour analysts who live in the geographic region affected by regulation, policy, and legislation. In 2020, the Association for Behaviour Analysis Australia (ABAA) created a working group to identify and propose different models of regulation that may be appropriate for the profession of ABA in Australia. The stated aims of this working group were to identify ways to (a) promote professionalism, (b) maintain a strong alliance with science, and (c) provide protection for consumers of services provided by a behaviour analyst in Australia [30]. However, developing new systems of professional regulation is complex and requires time and resources [31]. In what follows, three recommendations, or smaller 'steps' toward the development of professional regulation that may address practice the barriers identified in the current study and further advance the profession of Applied Behaviour Analysis in Australia, are described.

4.1. Recommendation #1: Create and Contextualise Practice Standards

A first step towards addressing several of the barriers noted in the current study, including inadequate training, supervision, and professional development, inconsistencies in how ABA-based

programs are designed and delivered, and lack of or negative public perceptions of ABA, would be to create Australian practice standards and a national code of ethics. From these, suitable qualifications and associated training programs could be identified, such as the BACB credentials and university courses that lead to them. The current study identified support for the BACB credentials, as the number of practitioners holding or working towards them has substantially increased over the last couple of years.

Not only do practice standards and an ethics code need to be created in Australia, but they need to be differentiated from practice standards and ethics codes that exist in other countries to ensure that they reflect the requirements of relevant policy and legislation (e.g., disability, allied health, and/or education), as well as the values and needs of Australian citizens. Australia has signed and ratified the United Nations Convention on the Rights of People with Disability (UN CRPD) [32], and this treaty underpins disability policy and advocacy in Australia. Therefore, it is important for all professionals who support individuals with disabilities to understand and uphold the general principles of this treaty. Australian practice standards should also reflect legislation such as the Disability Discrimination Act (DDA) [33] and the Disability Standards for Education (DSE) [34], which are laws designed to eliminate discrimination and protect the human rights of Australians with disabilities. To this end, Australian practice standards should emphasise the ways in which ABA-based programs can be designed and delivered to respect individual differences, promote the rights of people with disability, consider and support the strengths of the individual, and facilitate social inclusion and economic participation. In addition, Australian practice standards should promote the training of professionals and staff working with individuals with disabilities in the rights recognised in the UN CRPD, the DDA, and the DSE, so as to better provide the assistance and services guaranteed by those rights. Australian practice standards and ethics should also reflect federal and state law regarding privacy, confidentiality and safe storage of client records, and consent for services [35]. It will also be important to consider how Australian practice standards reflect the values, preferences, and cultural norms of Aboriginal and Torres Strait Islander peoples. Practice standards should be developed in collaboration with members of these groups and provide guidance about how to work with Aboriginal and Torres Strait Islander people and their families and communities in culturally sensitive and respectful ways [36,37]. Future research is needed to identify and validate the contents of Australian-specific practice standards and a code of ethics for ABA.

The creation and contextualisation of practice standards is an important step toward the development of a system of professional regulation. Regulation requires practice standards, which define the practice of a profession and outline the expectations and responsibilities of practitioners in that field. This includes a description of what training, qualifications and supervision is required by practitioners. The current study highlighted the urgent need for ABA practice standards within Australia, as it found significant inconsistencies in the qualifications and training experiences of current ABA practitioners, as well as frequently reported inadequacies in their training and supervision experiences. ABA practitioners within the current study had a wide range of qualifications, with only approximately one third of them found to hold ABA-specific qualifications (i.e., BACB credentials). The process of creating and validating practice standards will likely require significant stakeholder engagement to ensure that many voices with a vested interested in the professional practice of ABA in Australia are included and heard. Previous research has described the use of a job-analysis process for informing the development of practice standards [8]. This may provide a useful point of reference for initiating this process in Australia.

4.2. Recommendation #2: Establish a System of Self-Regulation

Another step toward addressing some of the barriers identified in the current study, such as lack of government recognition and regulation of ABA, would be to establish a national system of self-regulation. At present, The National Regulation and Accreditation Scheme (NRAS), maintained by the Australian Health Practitioner Regulatory Authority (AHPRA) is the primary source of certification

for health professionals in Australia, providing registration for all medical and nursing professionals as well as some allied health professions including psychology and occupational therapy [38]. Some allied health professions not covered by NRAS, such as speech pathology, are acknowledged as self-regulating health professions. For each of these professions, the accreditation process is managed by the relevant professional peak body. Self-regulating professions work in collaboration with the National Alliance of Self-Regulating Health Professionals (NASRHP), the national peak body representing self-regulating health professions in Australia. In addition to establishing their own practice standards, professions are required to meet the NASRHP practice standards to ensure consistent regulation and accreditation of practitioners across self-regulating professions, and compliance with national and jurisdictional regulatory requirements, including the National Code of Conduct of health care workers.

The first step toward self-regulation of ABA practitioners in Australia may be achieved through a simple, but commonly used, registration system, whereby practitioners supply their name, address, and qualifications to a government body or agency [31]. This would create a database of ABA practitioners in Australia and allow consumers to more easily find practitioners and independently assess their qualifications. This Association for Behaviour Analysis Australia (ABAA), the Australian professional association for ABA, has endorsed this preliminary model of regulation [30]. Once established, this may allow the ABAA to become a member organisation of the NASRHP. Once practice standards, a code of ethics, qualifications, and training programs have been developed, and the number of qualified practitioners has increased, other more restrictive forms of regulation (such as that provided under the NRAS) could be pursued [2,39], which may involve restricting the use of occupational titles [40].

4.3. Recommendation #3: Evaluate and Improve Employment Conditions

A third step toward addressing some of the barriers identified in the current study would be to conduct a labour market analysis to pinpoint the current demand for ABA services in Australia, current supply of service providers, and employment conditions are likely to be economically viable, attractive to employees, create career pathways, and sustain the growth of the profession into the future. Such an analysis was undertaken by the BACB, in which the employment demand for behaviour analysts between 2010 and 2019 was assessed in the United States [41]. Data pertaining to job title, occupation, employer, industry, required skills, credentials, and salary were extracted from publicly available job postings for behaviour analysts. The labour market analysis found that the annual demand for behaviour analysts had increased each year since 2010, and also showed the states with the highest demand. In Australia, the replication of such an analysis could be used to show the geographic regions with the highest demand for both behaviour analysts and therapy assistants. Such data could be used to inform hiring practices, to ensure that supply meets current demand in specific geographic regions by increasing pools of qualified ABA practitioners in regions with high demand. A labour market analysis could also be used to identify current remuneration practices, such as pay rates for casual and permanent employees and common practices around pay for travel time. These data could be used to establish consistent award rates for ABA practitioners that are commensurate with years of experience and qualifications. In addition, a labour market analysis could provide information about the desired skills and credentials that ABA service providers in Australia commonly seek, which could inform the design of practice standards.

5. Conclusions

Over the past decade, opportunities and government support for the professional practice of ABA in Australia have increased. This has seen a commensurate increase in demand for services bolstered by government funding, the establishment of a national ABA association, the recent creation of two university training programs, and a marked increase in the number of BACB certificants in Australia. While the future for ABA in Australia appears promising, the lack of regulation poses risks. First, as it was identified in the current study, without professional regulation and accompanying

practice standards, the training experience and qualifications of ABA practitioners are likely to vary, which may lead to inconsistencies between practitioners and negatively impact the fidelity and overall effectiveness ABA programs. Second, a lack of practice standards and regulation may increase the likelihood of ABA practitioners using methods that are outdated, not empirically supported, or unethical, with no clear recourse for consumer complaints. This in turn may lead to negative perceptions of ABA within the wider community. Third, without practice standards and regulation, the policy makers and the wider public might form a diminished opinion about ABA and practitioners themselves. Finally, a lack of practice standards and regulation may result in ABA being excluded from policy and practice recommendations related to the provision of evidence-based interventions and supports for individuals with ASD in Australia. The recommendations provided in the current study are designed to address these risks and advance the science and professional practice of ABA in Australia, while ensuring that Australian-s with ASD can access safe, effective, and ethical ABA-based services from qualified professionals.

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