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An Investigation of Service Providers' understanding, perspectives and implementations of the Transdisciplinary model in Early Intervention settings for Children with Disabilities

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An Investigation of Service Providers' understanding, perspectives and implementations of the Transdisciplinary model in Early Intervention settings for Children with Disabilities

Abstract

Purpose: The transdisciplinary practice model is currently being promoted as best practice in early intervention therapy for children with disabilities. However, supporting literature is limited. Thus, the question is asked, "What are service providers' understanding and perception of the transdisciplinary model in early intervention settings for children with disabilities?" **Method:** A systematic review was carried out using the Preferred Reporting Items for Systematic Reviews. An electronic search was conducted via six databases. Eight articles were selected. **Results:** Four studies predominantly focused on service providers' perspectives of the model using semi-structured interviews or surveys. Many studies were of adequate to low quality, and the methods of implementing the transdisciplinary approach varied across organisations. It is therefore difficult to draw valid conclusions based on service provider's viewpoints of the model. **Conclusions:** This review attempted to determine if the transdisciplinary model is best practice. The inconsistencies in the transdisciplinary teams indicates that overall, the general understanding of the model and its framework amongst organisations is poor. Further research is needed to establish service providers' understanding of the model and how transdisciplinary teams are functioning since the introduction of the National Disability Insurance Scheme.

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An Investigation of Service Providers' Understanding, Perspectives and Implementations of the Transdisciplinary Model in Early Intervention Settings for Children with Disabilities

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Abstract

Purpose: The transdisciplinary practice model is currently being promoted as best practice in early intervention therapy for children with disabilities. However, supporting literature is limited. Thus, the question is asked, "What are service providers' understanding and perception of the transdisciplinary model in early intervention settings for children with disabilities?" **Method:** A systematic review was carried out using the Preferred Reporting Items for Systematic Reviews. An electronic search was conducted via six databases. Eight articles were selected. **Results:** Four studies predominantly focused on service providers' perspectives of the model using semi-structured interviews or surveys. Many studies were of adequate to low quality, and the methods of implementing the transdisciplinary approach varied across organisations. It is therefore difficult to draw valid conclusions based on service provider's viewpoints of the model. **Conclusions:** This review attempted to determine if the transdisciplinary model is best practice. The inconsistencies in the transdisciplinary teams indicates that overall, the general understanding of the model and its framework amongst organisations is poor. Further research is needed to establish service providers' understanding of the model and how transdisciplinary teams are functioning since the introduction of the National Disability Insurance Scheme.

INTRODUCTION

In 2009, there were over 288,348 children with disabilities in Australia between the ages of 0 to 14 years.¹ More than half of these children (57%) had disabilities that were classified as severe and profound.¹ Furthermore, two-thirds of these children were found to need assistance with everyday activities.¹ Research has indicated that these children with disabilities or developmental delay may benefit from early intervention therapy (EIT) in order to identify their needs, prevent further complications, and achieve the best possible developmental outcomes.² This is supported by research that indicated significant progress associated with early intervention for children with Down Syndrome.³ Additionally, EIT for children with disabilities between the ages of 0 to 5 years has successfully reduced cognitive decline that would inevitably ensue without therapeutic intervention.⁴ It is evident that EIT allows more scope for improving a child's quality of life and is also more cost effective in comparison to the costs and difficulties that families and schools would face in order to accommodate for a child's complex needs later in life.²

Early intervention services for children with disabilities often require a comprehensive approach that includes several therapy disciplines that assess a child, plan interventions, and develop client-centred goals in order to achieve the best outcomes.⁵ These professionals thus work as part of therapy teams in order to meet the dynamic needs of a child with disabilities. Traditionally, interdisciplinary or multidisciplinary team models (Table 1) were predominantly utilised in therapy.⁶ Multidisciplinary teams consist of numerous disciplines that individually assess a child, carry out interventions, and write reports and goals within their own professional boundaries.⁷ Interdisciplinary teams, however, have greater interaction in order to establish a common

goal or goals for the client and to coordinate service delivery. However, therapists still primarily work and deliver interventions that are pertinent to their discipline.⁵

The transdisciplinary model was first developed in the United States in the 1970s and specifically promotes an integrative team approach that is family centred.⁶ Members of a transdisciplinary team (Table 1) are required to think and work outside of their disciplinary boundaries and collaborate with each other and the families to establish collective goals for the child.⁵ The transdisciplinary approach also consists of other concepts including key worker, role release, and arena assessment (see Table 1).⁸ During initial stages of therapy sessions, utilising this particular model, an arena assessment or a "play based assessment" is often conducted which entails one of the therapists assessing the child in all developmental areas whilst the other professions observe to establish the aims of therapy. Parents are also included during this assessment.⁸ A team meeting including parents and other key people is then conducted to form clear goals for the child. However, methods of implementing the transdisciplinary model can differ slightly within an organisation (see Table 2).

Disability service providers have predominantly focused on the individual needs of the child. However, in recent years, there has been a move towards incorporating parents in therapy, thus empowering them with the skills to contribute to their child's development.⁶ Family involvement is also supported by the idea that better insight of a child's needs can be established when seen within the family context.⁶ Family-centred practice is a key concept of the different therapy teams. However, in transdisciplinary teams, parents are specifically seen as team members throughout all stages of therapy, making the model unique in comparison to other team approaches.⁹

In July 2013, the National Disability Insurance Scheme (NDIS) was introduced in Australia. The National Disability Insurance Agency (NDIA), who administer the NDIS, aims to restructure and improve the disability services within Australia. The Australian Government's Productivity Commission on Disability Care and Support endorsed this transition as the findings of the commission suggest that the previous disability system provided inadequate services and minimal choice for people with disabilities.¹⁰ The NDIS model aims to enable individuals with disabilities to have better choice and control of their own funding.¹⁰ This transition in the disability sector has also prompted a movement towards transdisciplinary practice, with information published by the NDIA promoting it as best practice for children with disabilities.¹¹ The NDIA has defined the transdisciplinary approach as a team who works collaboratively, shares responsibility, has a key worker to deliver therapy, and who sees the family as valued team members.¹² This understanding of the transdisciplinary framework will be reflected on throughout the study.

Although there is research that shows the benefits of transdisciplinary teams such as up skilling of therapists and increased communication within the team, research has also highlighted problems and difficulties associated with this model.⁸ For example, a study based on the transdisciplinary model highlighted the challenges that professionals face, such as difficulties regarding professional hierarchies as well as not having the confidence to deliver therapy outside of professional boundaries.¹³

It is evident from several studies that the transdisciplinary approach has been supported by the NDIA based on the concept of family-centred practice. However, as one study pointed out, the organisational value of family centeredness is not always mirrored in practice.^{7,8,14} Additionally, there appears to be a number of different methods for implementing the model in therapy. These inconsistencies in service delivery are highlighted in table 2. Furthermore, there has been little to no investigative studies carried out on the use of the transdisciplinary model in early intervention settings in Western Australia. Therefore, this review focused on further exploring evidence of service providers' understanding and perceptions of the transdisciplinary model in early intervention for children with disabilities.

Table 1. Team models and terms

Key terms	Definition
Multidisciplinary	Different disciplines working with one client, within their own specialized boundaries. Minimal interaction.
Interdisciplinary	Different disciplines with collaborate together to establish goals; however, will still remain within their own area of practice when carrying out interventions

Patel DR, Pratt HD, Patel ND. Team processes and team care for children with developmental disabilities. *Pediatr Clin North Am.* 2008 Dec;55(6):1375-90. doi: 10.1016/j.pcl.2008.09.002. [PMID: 19041464]

Transdisciplinary	Collaborative team approach to therapy. Therapists work outside their expertise to create goals and deliver therapy
Key worker	The individual worker that is selected to deliver therapy. Meets with team regularly to discuss progress, interventions, and goals
Role release	This involves therapists delivering therapy outside of their expertise through guidance from the other therapists
Arena assessment	Involves one therapist assessing the child across different areas of development while the other therapists observe. The families are involved during this process

Ryan-Vincek S, Tuesday-Heathfield L, Lamorey S. From theory to practice: a pilot study of team members' perspectives on transdisciplinary service delivery. *Infant-Toddler Intervention*. 1995;5(2):153-75.

METHODS

Literature Search

This systematic review was conducted using The Preferred Reporting Items for Systematic Reviews (PRISMA).¹⁵ Six databases were searched, CINAHL, Web of Science, OT seeker, Library one, PsycINFO, and Google scholar. The database search was inclusive of earliest records to most recent with the final search conducted on 01/28/2016 (CINAHL 1980-2016, Web of Science newest to oldest, Library one 1966-2016, Google scholar 1930-2016, PsycINFO 1947-2016). The key terms used in the search were transdisciplinary, multidisciplinary care team, interdisciplinary, disability, and early intervention. Other search terms included teamwork, service providers, best practice, and therapy outcomes. In order to improve search outcomes key terms were truncated when using certain databases and suggested subject terms were also reviewed. Numerous combinations of the key terms were used to expand the search results. Papers that were opinion pieces, grey literature, and systematic reviews were excluded. However, reference lists of systematic reviews, opinion pieces, and included papers were searched for additional data.

Inclusion and Exclusion Criteria

As a result of a dearth of research on this topic, all study designs were reviewed. Studies from all geographical areas were also considered. Articles were included if they focused on implementation of transdisciplinary model or integrative approach to therapy in early intervention, particularly studies that were based on service providers' perspectives, with children between the ages of 0 to 8 years. Initially, titles and abstracts were reviewed first in accordance with the search criteria. Full texts of papers were then analysed. Papers that primarily focused on family-centred practice or transdisciplinary practice in adult settings were excluded. Opinion pieces solely outlining transdisciplinary or multidisciplinary teams as best practice were also excluded.

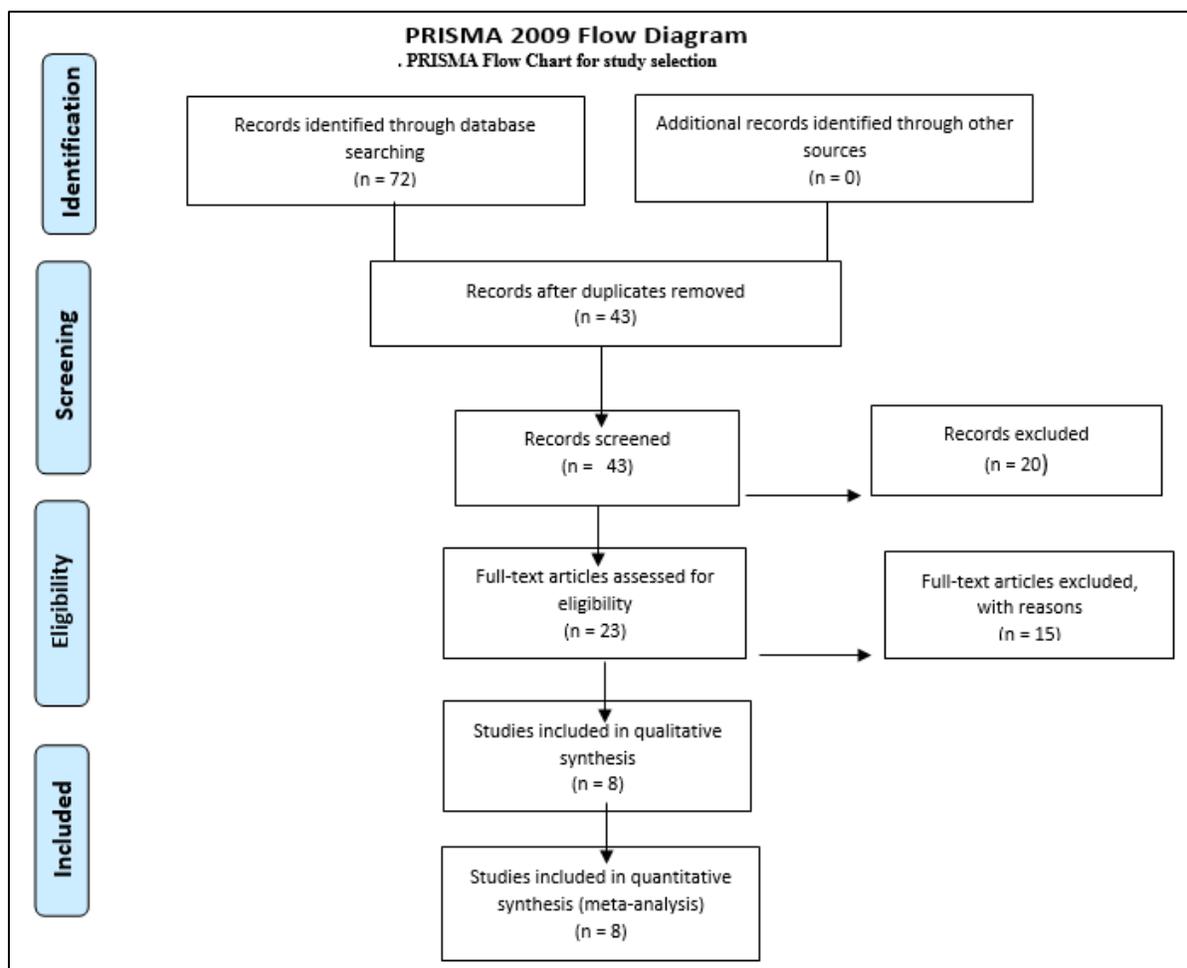
Assessment of Methodological Quality and Data Extraction

The first author and another researcher reviewed selected studies. The Standard Quality Assessment Criteria for Evaluating Primary Research papers from a variety of fields was used to determine the quality of the papers.¹⁶ Any inconsistencies were then discussed until consensus was achieved. The primary author extracted data from the studies including study design, participants, interventions, outcome measures, methodological quality, and results using the Mc Master guidelines for qualitative and quantitative studies.^{17, 18} The Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) was referred to for data extraction, and selected studies were recorded using the PRISMA flow chart.¹⁵

RESULTS

Evidence Synthesis

The primary search conducted produced 72 possible studies. Twenty-nine duplicate studies were excluded. The remaining 43 articles were screened based on title and abstract, and a further 20 articles were removed. The full texts of the remaining 23 were assessed. Articles were rejected if they did not specifically focus on the transdisciplinary model, did not include children (0 to 8 years), or were not original studies. The quality of the remaining 9 articles was then assessed and included in this review.



Rationale and Objectives of Reviewed Studies

The studies selected are presented in table 3. About half of the articles (n=4) included (S1, S3, S6, S7) investigated service providers perspective and experiences of being part of a transdisciplinary team in an early intervention programme. One study (S8) investigated the influence that transdisciplinary teams had on business factors such as waiting times and attendance. Furthermore, one study (S4) was based on the parent's experiences of having children with disabilities involved in early intervention utilising the transdisciplinary approach. In contrast to this one, article S5 investigated the difference in outcomes of a multidisciplinary team versus a transdisciplinary team used in therapy for young children with disabilities.

Methods Used in Reviewed Studies

There was an even divide between qualitative and quantitative methods. Qualitative exploratory research was conducted using semi-structured interviews in a portion of the selected studies (S3, S4). Two of the studies (S1, S2) used qualitative inquiry approach, with S1 involving comprehensive interviews. Quantitative methods were used in the other four studies (S5, S6, S7, S8), which were carried out using either comparative studies, surveys, or a crossover trial.

The sample sizes of the studies varied with one qualitative study (S3) which had four participants, while other studies had between 15 and 19 (S4, S5, S6). The largest sample size (S7) was 75. The characteristics of the participants varied in the different studies. Predominantly, the participants in the included studies consisted of various disciplines such as occupational therapists, speech pathologists, physical therapists, early childhood teachers, social workers, psychologists and special educators. One study had parents as the participants (S4). Some studies gave more details than others in relation to the participant's characteristics. For example, studies 1, 3, and 7 specified the years of experiences these professionals had. Participants in the studies were recruited by either telephone, consent-to-contact letters, or written invitation (S1, S3, S4, S6).

Service providers involved in the studies all worked in early intervention settings. However, implementation of the transdisciplinary approach varied within the different organisations. For example, within some organisations (S2, S3), participants delivered therapy in either a play-based or play-group program for children with disabilities. In other organisations, service providers delivered therapy within a centre for children with disabilities (S1, S4, S8). Only one study (S5) involved participants working as part of a transdisciplinary team within a rehabilitation unit.

The geographical areas in which the studies were conducted varied greatly. The majority of the studies, except studies 3 and 7, were conducted outside of Australia. Two of the studies (S5, S6) were conducted in America. The remaining studies were carried out in the UK (S8), Canada (S1), and one study (S2) did not specify.

Quality Assessment of Studies

The methodological quality of the included studies ranged from strong quality to low (see Table 3). Six of the eight studies (S3, S4, S5, S6, S7, S8) were of adequate or low quality, which was predominantly due to poor description of study design, subject selection, and analytical methods. Half of the studies were qualitative research and rated as low evidence (level 5). These studies were mainly focused on gathering service provider's perspective on the model (S3, S4, S6, S7). Similarly, some of the quantitative studies included in this review were non-experimental studies and involved survey questionnaires with resultant low evidence levels (S6, S7). These surveys were designed to elicit information from therapists and other service providers about their experiences with the transdisciplinary model. Two studies were rated level 4 (S5, S8). These were quantitative studies that investigated the outcomes of introducing a transdisciplinary model. One study (S8) analysed the waiting times and attendance within an organisation after the transdisciplinary approach was introduced. The other study used a crossover trial to examine the differences in outcomes for an organisation between a multidisciplinary and transdisciplinary team (S5). There were limited high level studies which could be included in this review.

Results of the Reviewed Studies

A significant number of the studies in this review focused on gaining information about service providers experience and perspectives of working as part of a transdisciplinary team in early intervention (S1, S2, S3, S6, S7). The outcome of these studies (see Table 3) varied and were specific to each organisation within the studies. For example, some studies (S4, S6) showed that the benefits of the transdisciplinary approach involved parent participation, while one study (S7) concluded the approach maximised resource use and improved service provision. Others studies found professional's skills, staff participation, and goal development increased (S5, S6), while another (S8) found the approach increased group attendance and reduced waiting times. Similarly there were disparities among the difficulties organisations experienced with the transdisciplinary approach that were also highlighted in the results. For example, one study (S3) elaborated on the issues of professional hierarchies and the different meanings of "play" that different therapists have, whilst another study (S6) discussed the resistance to change within the organisation and staff being over worked. One study (S7) found difficulties with staff shortages and lack of support for staff involved in the approach. These inconsistencies in results could be a result of variations in the methods of implementing the transdisciplinary model as highlighted in table 2.

The results of two of the studies (S1, S2) did not focus specifically on the outcomes of implementing the transdisciplinary model, but on generating themes or concepts that are important for the success of the model. For example, the importance of having set values within an organisation and appropriate management of change were discussed (S1) as well as strong professional relationships, appropriate development of the team, and the necessity of reflective practice (S2).

One of the studies (S4) that investigated parent's perspectives of the transdisciplinary approach found that parents valued being involved in the therapy as well as the key worker aspect of the model. However, it was also found that there were some administrative issues with the model, and parents also found the approach invasive at times.

DISCUSSION

The aim of this systematic review was to elicit information about service provider's experiences and perspectives of the transdisciplinary model. There is a paucity of literature in relation to this topic. Additionally, over half of the eight studies that were included were of adequate to low methodological quality. Furthermore, only a few studies gave comprehensive details of the participants, such as how much clinical experience they had in the area of early intervention. The sample sizes of the studies overall were relatively small making it difficult to draw conclusions from the results.

Three of the eight studies gave information regarding the participant's clinical experience (S1, S3, S7). The years of clinical experience these service providers had in these studies greatly contrasted each other. For example, in one study (S7) more than half the participants had less than five years of experience in comparison to another study (S1) where the participants had an average of eighteen years clinical experience. While in the other study (S3) service provider's experience ranged between three to twenty years. Participants with a low level of clinical experience (less than five years) practicing in early intervention

teams contrasts the recommended practices of the NDIS which emphasises that practitioners need to first be competent within their own profession and have enough clinical experience before they can work outside of their professional boundaries in transdisciplinary teams.¹⁹ This importance of having adequate clinical experience to work in a transdisciplinary team was also supported in one study (S7) where it was found that the amount of experience service providers had was a key component contributing to the effectiveness of the team in early intervention therapy.¹⁴

Seemingly all organisations that were involved the studies had different interpretations of the transdisciplinary model as seen in table 2, resulting in mixed outcomes in the review. For example, some studies (S4, S6, S7) reflected the theoretical framework and definition of the transdisciplinary model in practice by pooling their knowledge and assigning a key worker to deliver therapy.^{8,12} However, in contrast to this, some organisations within the studies (S2, S3, S8) used playgroups as a means of incorporating the transdisciplinary model. Amongst these playgroups, a specific service provider controlled and coordinated the groups. For example, a physiotherapist was in charge of assigning children to appropriate groups in one particular study (S1). Similarly, in another study that involved playgroups (S2), the service provider considered expert in the area of the disability delivered the therapy, thus contradicting the theoretical framework of the transdisciplinary model.

Because of these disparities, it was difficult to establish a consistent and complete understanding of service provider's experiences and perspectives of the transdisciplinary approach. One particular study suggested that the inconsistencies in relation to service delivery is a result of policy issues.⁷ However, it was acknowledged that one study (S6) closely implemented the theory of the transdisciplinary model into practice. Nevertheless, this study was not carried out in last ten years and was also conducted in America. In continuance to this, it should be noted that the geographical areas in which the studies included were carried out were extremely varied. Only two of the eight studies that were included were based in Australia. Therefore, the body of knowledge of service provider's experiences and perspectives of the transdisciplinary approach within Australia since the introduction of the NDIS is limited. Thus, further exploration of this topic is needed in Australia.

Service providers in transdisciplinary teams being overworked and unsupported was an issue that was also brought to light in this review.⁸ The studies in this review showed minimal evidence of training or peer support for service providers that would assist them to work efficiently in transdisciplinary teams.⁷ Consequently, this disorganisation seems to have a negative impact for service providers with one study (S3) showing that professionals who were not adequately supported and trained lacked confidence working outside of their professional boundaries.¹³ This suggests that measures need to be put in place such as appropriate training and guidelines so that service providers can work effectively to ensure sufficient service delivery.

A particular area that did not receive attention in the studies was the developmental outcomes for children receiving interventions from transdisciplinary teams and whether goals set by the teams were being met.^{7,20} This aspect of a transdisciplinary team's functioning has yet to be researched. The lack of investigation into this aspect of the model should be a guide for future research as the outcomes of this approach is still unclear.

CONCLUSION

With the NDIA promoting and funding the transdisciplinary approach, there is a need for further research to be carried out on the functioning of these teams to determine whether transdisciplinary teams are indeed the best practice model for early intervention. As previously discussed, there are inconsistencies in the understanding of the model, and further investigations need to be conducted to gain insight into service provider's perspectives of the model. Furthermore, much of the literature reviewing the transdisciplinary approach was from service providers' perspectives outside of Australia. In order for this approach to be effective, there needs to be an overall increase of knowledge in regards to the policies and procedures involved in the service provision of these teams.

The transdisciplinary model is being referred to as being best practice in early intervention for children with disabilities. However, it can be argued that there is a lack of evidence to support this theory as shown in the review. As previously discussed, early intervention typically involves several disciplines working in the different areas of development in which they specialise in order to achieve the best outcome for the child. These disciplines can work collectively or separately depending on the model of practice their organisations promote. Regardless of the chosen model, early intervention requires a holistic, client-centred approach where the diverse needs of a child are met appropriately by professionals.

Implications for Researchers

The transdisciplinary approach needs to be further assessed and evaluated within Australia. It is crucial to establish if this particular model is in fact best practice for children with disabilities or simply more cost effective than other models of practice. As previously mentioned, this approach was first designed in the 1970s at a time where there were financial constraints, and the model was brought about to accommodate for this lack of funding by combining knowledge from different disciplines and allocating a key worker to carry out interventions.

Perhaps the question should be asked if team approaches are still client-centred and based on the unique needs of a client. As one study suggested, the best fit model for a child involved in early intervention therapy is centred on individual needs, and therefore the model or method of service delivery selected should be based specifically on the individual.⁸

Implications for Service Providers

With this new transition towards the transdisciplinary teams within Australia, there is a need for service providers to have adequate training and support. As found in one study (S1), there is a need for set values within an organisation and appropriate management of change for these teams to function effectively.²¹ In addition, it was found from the studies that these teams must be developed and structured appropriately within organisations, allowing time for reflective practice to further ensure that team members are supported and delivering therapy appropriately.²² It is critical that service providers build strong professional relationships amongst each other to avoid professional hierarchies occurring that would affect team functioning.^{13, 22}

Implications for Consumers

Transdisciplinary teams have been promoted based on their inclusion of family in therapy. It has been reported in studies that parents and service providers feel this is a beneficial feature of the model.^{7, 8} However, there is little research to support that the transdisciplinary approach is most beneficial to the children in terms of therapy outcomes. More research is needed to ensure children with disabilities are receiving adequate therapy to meet their needs.

LIMITATIONS

The results of this review should be interpreted with some caution. The studies included varied in quality, with over half of the studies being of adequate to low quality, thus effecting the strength of the conclusions. The studies also differed in aim, design, sample size, and participant characteristics which also made it difficult to draw conclusions. Furthermore, the review only included papers in English; therefore, it is possible that other relevant research was not identified.

Table 2. Methods of implementing TDA collected from the various studies

Study/Reference	23	8	21	22	7	13	20
Group therapy	5 to 6 children			Integrated play group: 5 children with and 5 children without disability		Play group 7 families and their children	
Diagnostic group		Birth to 3 years multiple needs	0 to 3 yo multiple needs		0-6 years with disabilities/developmental delays		Children with physical and developmental disabilities
Manager	PT		Whole team transitioned to most needed	Teacher & SP		Program manager	
Venue	Child Development centre			Naturalistic setting		Local community venues	Rehabilitation institute
Parental involvement	In group	In therapy	Team members		Team members	In therapy	In therapy
Team			Holistic				
PT	Yes	Yes	Yes		Yes		Yes
OT	Yes	Yes	Yes		Yes	Yes	Yes
SP	Yes	Yes	Yes	Yes		Yes	Yes
Teacher		Yes		Yes		Yes	
Nurse	Yes						

Disability expert therapist Behaviour therapist, Developmental consultant, Resource supervisor Paediatrician Clinical Psychologist Social worker Student teacher Intern SP Special education	Yes Yes		Yes Yes Yes	Yes Yes Yes			Yes Yes Yes
Team meetings	Every 8 weeks	3-4 times a month		Reflection	With parents and various disciplines to establish goals and interventions	Weekly reflection	Weekly, facilitated by clinical psychologist
Assessments conducted		At clinic Arena assessment	Play based with observer assessor, play-based assessor, facilitator, two other team member to interact				Southern California Ordinal Scales of Development
Goals	Developmental domains	Developmental Domains	Family centred practice	Meaningful activity	Development domains	Development domains	Developmental domains
Therapy	Group therapy	Direct and indirect integrative approach		Conducted by expert in field. Teacher assisted with implementing speech therapy activities in class	Key worker, play based activities	Play based Play leader carried out features of the programmed with families	Interventions were individual

Yang et al.: Early intervention for children with developmental delays under the age of 6 years, a collaborative approach.¹⁴ This study is aimed on gathering service providers understanding and experiences of working collaboratively in early intervention. The findings highlighted therapist's highly value working closely with families. This study did not explicitly focus on the method of TDA.¹⁴

PT=Physio therapist

SP=Speech Pathologist

OT=Occupational Therapist

Table 3. Descriptive Analysis Table

Study (S) and Reference	Design/Participants	Intervention	Outcome Measures	Methodological Quality	Results/Level rating
S1²¹	Qualitative study using phenomenological observation and semi structured interviews. Stakeholders from in the intervention team providing therapy to children with multiple needs between 0-3yrs. (n=6)	Transdisciplinary approach	None	Very strong quality, (score = 20/20) Strong and clear methodology, reflexivity of account, conclusion supported by results	Themes emerged that are central for successful execution of TDA including importance of having set values within the organisation, appropriate management of change and the beneficial learning process that comes about because of this transition Level 5
S2²²	Qualitative study using transcripts of playgroup reflective meetings, analysis of playgroups, observations and field notes. Play group consisted of 5 typically developing children and 5 with disabilities. Number of members on TDA team was not specified.	Transdisciplinary playgroup	None	Strong quality (score=17/20). Methodology clear, reflexivity of account, conclusion supported by results. Partial connection to theoretical framework. Sampling strategy adequate.	The necessity of appropriate development and structure of transdisciplinary team, strong relationships are needed amongst professionals, the importance of reflective practice in order for TDA to be successful. Level 5
S3¹³	Qualitative study using participant observation, recordings of reflective practice sessions and semi-structured interviews. Participants included OT, two early childhood teachers, and speech therapist. All female. (n=4)	Play based early intervention programme, using a transdisciplinary approach	None	Adequate quality (score=14/20). Partial description of sampling strategy, data collection and analysis and conclusion.	Issues relating to professional hierarchies and different meanings of 'play' for different disciplines. Level 5

S4⁷	Qualitative explorative study using semi structured interviews with parents of children between 0-6yrs involved in early intervention disability services. 15 mothers and 4 fathers participated. (n=19)	Transdisciplinary and multidisciplinary teams	None	Adequate quality (score=13/20) Study design was not clear. Partial connection to theoretical framework. No verification procedures used for credibility, no reflexivity of account.	Values and obstacles to MDA AND TDA. Values of TDA included family centredness, having a key worker. Obstacles included administrative problems and invasiveness Level 5
S5²⁰	A cross over trial. Investigation between multidisciplinary and transdisciplinary teams. Specialists and educators working with children with disabilities were involved in the two different approaches. (n=19)	The use of multidisciplinary and transdisciplinary approach	Transdisciplinary team rating scale. Team assessment questionnaire. Staff perception questionnaire	Adequate quality (score=19/28). Non interventional study. Sample size adequate.	Transdisciplinary approach more effective, staff member participation was greater, increased goal development and holistic thinking. Level 3
S6⁸	Quantitative study using survey questionnaires. Therapists working with children with disabilities between 0 to 3yrs. (n=24)	Transdisciplinary approach	Survey	Adequate quality (score=15/28) Study was not interventional. Study design, subject selection and analytical methods not clear. No estimate of variance reported in results. No control for confounding reported.	Benefits of TDA including parent participation, professional's skills increasing. Negative results included staff overworked, resistance to change. Level 4
S7¹⁴	Quantitative study using survey questionnaires.	Transdisciplinary/ collaborative service delivery	None	Low quality (score=13/28) Study was not	Benefits of TDA include maximising

	Service providers working in early childhood intervention. 97% female. Mean age 37.4 years. (n=75)			interventional. Study design and analytical methods not clear. Sample size adequate.	resources and improves service provision. Difficulties with staff shortages and support. Values do not always reflect practice. Level 4
S8 ²³	Quantitative. Statistical analysis of attendance and waiting times after TDA is introduced. Children in intervention group 0-5 years. Numbers per group: 5-6 children	Therapy group for children with disabilities utilising TDA	None	Very low quality (score=10/28). Study design, method of subject selection, analytical methods, were not clear. Results were described in adequate detail. Subject characteristics were not described. Outcome measures not reported.	Reduction in waiting times, increased group attendance and effective use of resources Level 4

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