

Characteristics, attributes and outcomes of allied health transition to practice programs: A mixed-method systematic review

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Abstract

Introduction: Workforce sustainability is critical to equitable and safe healthcare. However, there is evidence of poor transition of new graduates to the workplace, with a resultant loss of health professionals from the system. Globally, little is known about allied health transition and transition interventions. The aims of this mixed-methods systematic review were to describe the characteristics of transition to practice programs for novice allied health professionals, the outcomes from these programs, how they are measured and how transition challenges are addressed in transition programs.

Methods: Searches were conducted in MEDLINE, CINAHL, PsycINFO, AMED and the Cochrane Library. Two researchers reviewed the studies and reached a consensus for inclusion through discussion. All study types were included. Articles were evaluated using the Mixed-Methods Appraisal Tool, with reporting guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Results: A total of 15 studies were included. Various allied health populations, interventions, timeframes, program content and learning modes were used but with limited description. There was misalignment between allied health graduates' expectations, practice reality and supports offered within transition programs. While authors reported success from transition interventions, outcomes were not clear and there was a lack of tools for robust outcome measurement.

Conclusion: Well-designed transition programs are needed to build evidence on effective interventions and support. A primary focus should be on developing and measuring well-defined transition outcomes and the longer-term impact of transition programs on career progression and success.

Keywords: transition; transition interventions; allied health; new graduate; early career; novice; attributes; systematic review

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Introduction

The aims of this mixed-methods systematic review were to describe the characteristics of transition to practice programs for early career allied health professionals, the outcomes from these programs, how they are measured and how transition challenges are addressed in transition programs. Transition is a poorly defined, contested term that lacks a sound theoretical evidence base (Chicca & Bindon, 2019). In this review, we refer to graduate transition as the period when students graduate and change from student learner to novice qualified health professional capable of independent practice (Stoikov et al., 2020). Transition programs are designed to support a graduate's transition to working independently in any healthcare setting (Kenny et al., 2021). A list of allied health professions was drawn from the Australian Health Practitioner Regulation Agency, Allied Health Professions Australia and national and international bodies.

The cultural shift from student to qualified professional is challenging and stressful (Kenny et al., 2021; Stoikov et al., 2020). Poor transition, resulting in loss of graduates from the workforce, has economic and psychosocial impacts on graduates and impacts health system sustainability (Duclos-Miller, 2011; Rhéaume et al., 2011). Globally, addressing transition is critical, as the education and retention of allied health professionals is directly linked to equitable and universal health coverage (WHO, 2016).

Much has been written about transition and transition interventions in nursing and medicine. New graduate nurse transition programs are recommended or mandated in many countries (Banks et al., 2011; Doughty et al., 2018; Forde-Johnston, 2017; Marks-Maran et al., 2013; Ulrich et al., 2010) to support, integrate and retain graduates in the workplace (Rush et al., 2019). In medicine, formal internship, residency or foundational programs support junior doctor transition (Sturman et al., 2017; van den Broek et al., 2020). Final-year transition to practice training programs (O'Brien, 2018) or mandatory final transitional years (ten Cate et al., 2018; van den Broek et al., 2020) can bridge a gap between medical school and general or specialty medical training (Brennan et al., 2010).

Transition research with allied health professions has focused on supports and processes (Lao et al., 2021; Martin et al., 2021; Moores & Fitzgerald, 2017), perceptions and expectations (Naylor et al., 2015; Noble et al., 2015; Steenbergen & Mackenzie, 2004; Subramaniam et al., 2014), challenges of transition (Battaglia & Flynn, 2020; Harvey-Lloyd et al., 2019; Magola et al., 2018; Moir et al., 2021; Mourh & Newby, 2019; Murray et al., 2015) and preparedness for practice (Adam et al., 2014; Agllias, 2010; Black et al., 2010; Lee & Mackenzie, 2003; Merga, 2016; Seah et al., 2011; Stoikov et al., 2020; Toal-Sullivan, 2006; Tryssenaar & Perkins, 2001). In occupational therapy, novice professionals struggle with self-doubt, clinical skills, reasoning and managing a caseload within the context of the organisation (Harvey-Lloyd et al., 2019; Subramaniam et al., 2014). In a study by Moores and Fitzgerald (2017), transition was facilitated through support programs, supervision, education and opportunities to develop professional reasoning, identity and reflective practice.

Evidence of transition programs in medicine and nursing is growing, however in allied health, there remains a major knowledge gap about transition programs and the challenges and outcomes from these programs. This review addresses this gap.

Methods

This mixed-methods systematic review addressed the following questions: What are the characteristics of transition to practice programs in allied health? What are the outcomes of transition programs and how are these measured? How are transition challenges addressed in these programs? The review protocol is registered with PROSPERO (CRD42020178685). Reporting was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Ottawa Hospital Research Institute, 2015). Eligibility criteria for the review were developed *a priori* in the Person, Intervention, Outcome format (Table 1).

The search strategy was based on three concepts: allied health professions, early career timeframes and workplace transition programs. The full search strategy is outlined in Table 2.

Table 1

Study Selection Criteria

Inclusion	Exclusion
<ul style="list-style-type: none"> • Qualitative, quantitative, mixed-methods studies • Physiotherapist, paramedic, Chinese medicine practitioner, psychologist, occupational therapist, podiatrist, chiropractor, Aboriginal and Torres Strait Islander health practitioner, dentist, optometrist, osteopath, pharmacist, medical imaging/radiation therapist, audiologist, social worker, speech pathologist, dietitian, exercise physiologist, respiratory therapist • Allied health graduates in their first 3 years of practice • Final-year university allied health students • Transition programs, mentoring, orientation, induction or formal professional supports • English language 	<ul style="list-style-type: none"> • Thesis or book chapter, review, opinion piece or editorial, conference proceedings/poster/abstract • Studies of other professionals outside of those documented • Allied health graduates not in their first 3 years of clinical practice or transitioning to a research position, or a university student not in their final year of study • Transition programs, processes, mentoring, orientation or professional supports for the supervisor or mentor • Development only of formal transition, mentoring or orientation programs or professional supports • Published in a language other than English with no available English translation

Table 2*Search Strategy*

allied health personnel OR allied health professionals OR physiotherap* / physical therap* OR paramedic* OR Chinese medicine OR psychology / psychologist* OR occupational therap* OR podiatry / podiatrist* OR Chiropractic/ or chiropract* OR Aboriginal and Torres Strait Islander health practice OR dentists / dental practitioners / dental professional* OR Optometrists/ Optometry / optometr* OR osteopath* OR pharmacy / pharmacist / pharmacists OR medical radiation OR medical imaging OR radiation therap* OR audiologist* / audiology OR social work* OR speech pathologist* / speech language patholog*/ speech therap* OR dietitian* / dietician* OR exercise physiologist* OR respiratory therap*

AND

New Graduates OR New Graduate Role OR College Graduates OR graduate OR first adj1 year* OR early career OR neophyte OR beginner* OR novice* OR "(newly or recent*) adj1 qualified)," OR final year student* OR 4th year student* OR fourth year student*

AND

Transitional Programs OR transition* program* OR transition* to practice OR support program* OR Mentorship / Mentoring / Mentors / mentor* OR Employee Orientation OR orientation

Comprehensive search strategies were developed for each database (see Medline search in the appendix). Searches were conducted by two researchers (RM, LH) in MEDLINE, CINAHL, PsycINFO, AMED and the Cochrane Library from the earliest time available to November 2021. A hand search of reference lists and forward citation of included studies and first author citation tracking were completed using PROSPERO, Google and Google Scholar. Reference lists of all identified systematic reviews were screened for studies not identified in database searching. Search results were downloaded to Endnote, imported to Covidence (Cochrane's systematic review tool) and duplicates removed. Studies were reviewed independently by RM and LH on title and abstract and then full text of all remaining articles. Disagreements were resolved by discussion between RM and LH until consensus was achieved. Where disagreement remained, the third researcher (AK) was consulted.

Data extraction and quality appraisal

A customised data extraction form included publication details, location, population, aims, study type, data collection, results and outcomes of the transition program. Two researchers (RM, LH) extracted data independently and then discussed for consistency and accuracy of data extraction to minimise bias risk. The quality of the studies was rated using the Mixed-Methods Appraisal Tool (MMAT) (Hong et al., 2018). Differences were discussed and resolved. Consistent with MMAT guidelines, no scores were applied and no studies were excluded based on quality.

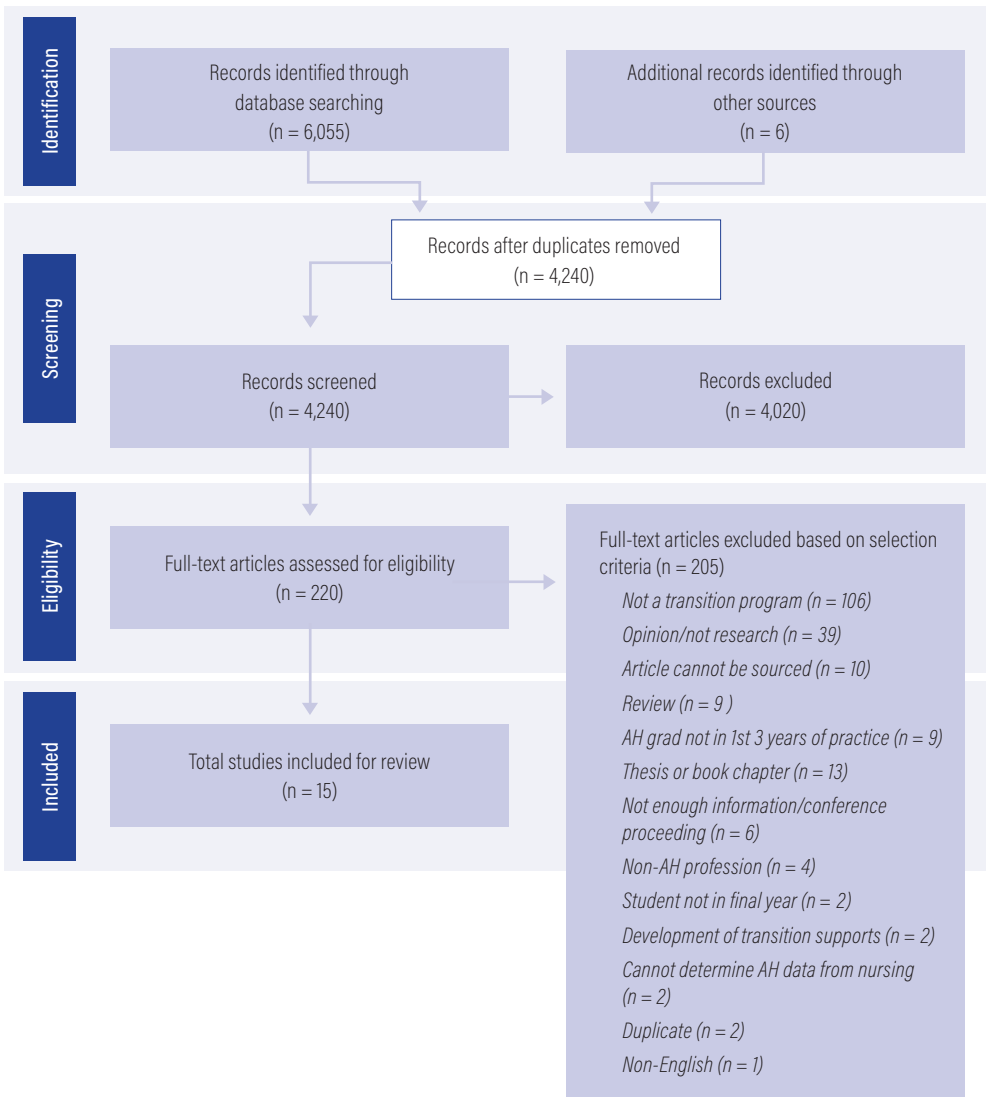
Synthesis of results

Quantitative data in studies was narratively synthesised (Popay et al., 2006). Meta-analysis of data was not possible due to study heterogeneity. Inadequate descriptions

of transition programs, including settings, content, timeframes, program methods and outcome measures prevented pooling of data. Qualitative data were synthesised according to Thomas and Harden (2008) using QRS NVivo software. Statements or quotations from the results and discussions that related to allied health transition programs, professional and personal attributes, skill development and socialisation were coded line by line and then like concepts grouped by one researcher (RM) to form sub-themes. Identified themes were reviewed by all researchers for accuracy.

Figure 1

Flow Diagram of PRISMA Selection Process



Results

Electronic database searches yielded 6,055 studies (see Figure 1). After duplicate removal, 4,240 studies were screened for inclusion. The final dataset included nine studies and an additional six from manual searches. Thirteen studies were qualitative (87%), and two were mixed methods (13%).

Of the 15 included studies, three (20%) had a clear research question, eight (53%) had a research aim and four had a research objective (27%). Of the two mixed-methods studies, neither provided a clear research question. There were key gaps in the interpretation and integration of qualitative and quantitative data in one study (Morley, 2009b). Divergences and inconsistencies between the different forms of data were not adequately explained nor the data integrated in accordance with mixed-methods design. In the 13 qualitative studies, authors used methods that answered the research questions and aims or objectives. Findings were adequately derived and interpreted, and there was coherence between data sources, collection methods, analysis and interpretation. There were few gaps in the details of confounders, with only one study assessed as “unable to tell” in relation to interpretation of results (Morley, 2009a).

Study characteristics

Allied health professions included physiotherapy (Buning & Buning, 2019; Portney & Knab, 2001; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Westervelt et al., 2018) (n = 6), occupational therapy (Morley, 2009a, 2009b; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021) (n = 6), oral health therapy (Ali et al., 2016; Bullock et al., 2013; Ralph et al., 2000; Skinner et al., 2021; Sooful et al., 2020) (n = 5), speech pathology (Smith & Pilling, 2007, 2008; Sooful et al., 2020) (n = 3), podiatry (Smith & Pilling, 2007, 2008; Sooful et al., 2020) (n = 3), social work (Pare & Le Maistre, 2006; Smith & Pilling, 2008) (n = 2), radiation therapy (Beldham-Collins & Milinkovic, 2009) (n = 1), exercise physiology (Smith & Pilling, 2008) (n = 1), physical education (Smith & Pilling, 2007) (n = 1), pharmacy (Sooful et al., 2020) (n = 1), prosthetics and orthotics (Sooful et al., 2020) (n = 1) and dietetics (Smith & Pilling, 2008) (n = 1). Studies were conducted in Australia (Beldham-Collins & Milinkovic, 2009; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021; Westervelt et al., 2018) (n = 7), United Kingdom (Ali et al., 2016; Bullock et al., 2013; Morley, 2009a, 2009b; Ralph et al., 2000) (n = 5), United States of America (Buning & Buning, 2019; Portney & Knab, 2001; Westervelt et al., 2018) (n = 3), New Zealand (Westervelt et al., 2018) (n = 1) and Canada (Pare & Le Maistre, 2006) (n = 1). A total of seven studies (47%) were in metropolitan locations (Ali et al., 2016; Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Pare & Le Maistre, 2006; Smith & Pilling, 2007, 2008; Turpin et al., 2021), one (7%) in combined metropolitan and rural locations (Sooful et al., 2020), one (7%) in a rural location (Skinner et al., 2021) and in six (40%), no location was stated (Buning & Buning, 2019; Morley, 2009a, 2009b; Portney & Knab, 2001; Ralph et al., 2000; Westervelt et al., 2018).

Table 3
Study Characteristics

Study	Discipline/Location/ Settings	Method	Sample	Intervention/ Timeframe	Main Attributes/ Content of Program	Modes of Learning	Measure of Transition/Skill Attainment	Program Evaluation/ Validated Transition Evaluation Tool
Ali et al. (2016)	Dentistry/oral health UK General practice Metropolitan	Qualitative Semi-structured interview	n = 16 Students = 3 EC = 3 Other = 10 M = 9 F = 7	Internship/ mentor program 1 year	Clinical skill development & competency Communication Professionalism Management Leadership	Situated learning Observing supervisor practice Supervised practice Independent practice	No No validated transition evaluation tool	No evaluation No validated transition evaluation tool
Beldham- Collins & Milinkovic (2009)	Radiation therapy Australia Public hospital Metropolitan	Qualitative Focus group	n = 5 EC = 5 Gender: NS	Professional development year program 1 year	Procedural processes Communication Clinical & simulation skill development & competency	Reflective practice: journals Tutorials	Performance evaluation (24 & 48 weeks)	Post-program focus group evaluation No validated transition evaluation tool
Bullock et al. (2013)	Dentistry/oral health UK General practice Metropolitan	Qualitative Group discussion, questionnaire, structured telephone interview/or questions via email	n = 21 EC = 21 Gender: NS	Internship (Dental Therapists' Foundation Training Scheme) 1 year	Procedural processes Clinical skill development, competence & confidence Communication Documentation Professional socialisation	Supervisor practice/ collaborative treatment Take home tasks/ independent study Learning portfolio	Peer review, Dental Evaluation of Performance Tool (ADEPT) Patient Assessment Questionnaire (PAQ) Pre and post self- rating of clinical skill confidence (6-point scale)	Post-program evaluation questionnaire with follow up discussion. Past participants retrospective telephone interview or email questions. No validated transition evaluation tool

Study	Discipline/Location/Settings	Method	Sample	Intervention/Timeframe	Main Attributes/Content of Program	Modes of Learning	Measure of Transition/Skill Attainment	Program Evaluation/Validated Transition Evaluation Tool
Buning & Buning (2019)	PT USA Public outpatient clinics Region unspecified	Qualitative Semi-structured interview & survey	n = 35 Students = 5 EC = 5 Other = 25 Students: M = 2 F = 3	Mentoring program framework 6 months (minimum)	Ramped support Clinical skill development & competence Soft skill development & competence (communication, collaboration, stress management, leadership) Mentor qualities Matching mentor/mentee	Observing supervisor practice Supervised practice Independent practice Supervisor practice/collaborative treatment Collaborative communication	No No validated transition evaluation tool	No evaluation No validated transition evaluation tool
Morley (2009a)	OT UK NHS public settings Region unspecified	Qualitative Semi-structured interview	n = 8 EC = 4 SV = 4 F = 8	Preceptor program 1 year	Clinical skill development & competence Reflective practice Develop professional behaviours	Reflective practice Observing supervisor practice Supervised practice Group discussion Workshops	Knowledge and skills framework; measure competence 6 & 12 months Development review at 12 months	Mid-program semi-structured interview at 6 months Post-program semi-structured interview at 12 months No validated transition evaluation tool
Morley (2009b)	OT UK Public hospitals, community, day services Region unspecified	Mixed Semi-structured interview	n = 10 NG = 4 SV = 6 Gender: NS	Preceptor program 1 year	No detail of program	Reflective practice Observed practice Group discussion Workshops	Semi-structured interview at 6 months Development review at 12 months	Mid-program semi-structured interview at 6 months Post-program semi-structured interview at 12 months No validated transition evaluation tool

Study	Discipline/Location/Settings	Method	Sample	Intervention/Timeframe	Main Attributes/Content of Program	Modes of Learning	Measure of Transition/Skill Attainment	Program Evaluation/Validated Transition Evaluation Tool
Pare & Le Maistre (2006)	SW Canada Public, private & community Metropolitan	Qualitative Semi-structured interview & focus groups	n = 32 NG = 12 Students = 11 SV = 9 Gender: NS	Induction From final placement into new EC job role	Collaboration Professional identity Active professional socialisation & engagement Community of practice	Situated learning	Onsite observation Final placement evaluation forms	Semi-structured interview x 2: during final student placement & in 1st EC job Focus group during placements/EC job No validated transition evaluation tool
Portney & Knab (2001)	PT USA Public & private hospitals, private practice, nursing homes Region unspecified	Qualitative Survey	n = 21 Gender: NS	Internship 3 phases: 4-month final clinical experience as a student = Doctor of PT degree; proceeds to licensed PT with supervision; followed by licensed PT full responsibility 12-13-months	(Dependent upon training site) Develop confidence Autonomy Professional socialisation Clinical skill development & competence Critical thinking Education & support	Case studies Group discussion Grand rounds Workshops Research & development projects Take home tasks/independent study	Entry-level competence assessed on the American Physical Therapy Association Clinical Performance Instrument Completed at 4 months = qualify as PT	Survey evaluation of program experience Employer evaluation of program No validated transition evaluation tool

Study	Discipline/Location/ Settings	Method	Sample	Intervention/ Timeframe	Main Attributes/ Content of Program	Modes of Learning	Measure of Transition/Skill Attainment	Program Evaluation/ Validated Transition Evaluation Tool
Ralph et al. (2000)	Dentistry/oral health UK General practice Region unspecified	Qualitative Questionnaire	n = 154 VDP = 77 Non-VDP = 77 M = 82 F = 72	Vocational training program 1 year	(Dependent upon training site) Clinical skill development & competence Critical thinking Education & support Professional socialisation Communication/patient management skills Business management	Supervisor practice/ collaborative treatment Situating learning	Nil formal	Questionnaire evaluation of program experience No validated transition evaluation tool
Skinner et al. (2021)	Dentistry/oral health Australia Community Rural/remote	Qualitative Online survey	n = 23 EC = 15 Other = 8 M = 1 F = 13 Other = 1	Dalang project 1 year 2.5 days service delivery, 2.5 days health promotion PD x 4/yr Weekly teleconference	Oral health promotion Cultural competency EBP Critical thinking & reflection Professional socialisation Communication & confidence Education & support Clinical skill development & competence Rural & remote work strategies	Health promotion/ education Situating learning Telehealth/ teleconference Professional development activities	No	Survey evaluation of program experience/ satisfaction; participant & SV/staff Analysis of oral health rural workforce programs Service delivery data, including health promotion No validated transition evaluation tool

Study	Discipline/Location/Settings	Method	Sample	Intervention/Timeframe	Main Attributes/Content of Program	Modes of Learning	Measure of Transition/Skill Attainment	Program Evaluation/Validated Transition Evaluation Tool
Smith & Pilling (2007)	OT, PE, SP, PT, podiatry Australia Public hospital Metropolitan	Qualitative Written feedback	n = 13 EC = 13 Gender: NS	Northern Health AH Interdisciplinary Graduate Program 12 x 2-hour sessions over 10 months	ID Orientation Teamwork/roles Communication & confidence Research/EBP Critical thinking & reflection Documentation Professional socialisation	Reflective practice Group discussion Workshops Take home tasks/ independent study Collaborative activities	Process, baseline & final evaluation	Anonymous, written evaluation/feedback on the experience of each session, baseline & final evaluation Formative evaluation No validated transition evaluation tool
Smith & Pilling (2008)	Dietetics, EP, OT, PT, SW, SP, podiatry Australia Public hospital Metropolitan	Qualitative Case study Written feedback	n = 13 EC = 13 Gender: NS	Northern Health AH Interdisciplinary Graduate Program 8 x 2 hour, 3 weekly sessions over 3 months plus 1 x follow up/feedback session in 4 months	Transition challenges Supervisors Roles, responsibilities & teamwork Critical thinking and reflection Negotiation & communication skills Documentation Professional socialisation	Reflective practice Group discussion Workshops Take home tasks/ independent study Collaborative activities	Program evaluation & retention rates monitored	Program evaluation: participant & AH executive feedback, facilitator observation No validated transition evaluation tool

Study	Discipline/Location/Settings	Method	Sample	Intervention/Timeframe	Main Attributes/Content of Program	Modes of Learning	Measure of Transition/Skill Attainment	Program Evaluation/Validated Transition Evaluation Tool
Sooful et al. (2020)	PT, OT, SP, P&O, dentistry/oral health, podiatry, pharmacy Australia Public hospital & VC to other health centres Regional & metropolitan	Qualitative Survey, focus group & questionnaire	n = 21 EC = 14 Other = 7 Gender: EC M = 4 F = 10	Interprofessional graduate program 9 sessions over 3 months	Confidence Critical thinking and reflection IP collaboration & teamwork Professional socialisation Self-care strategies Conflict management Rural & remote work strategies	Presentations Group discussions Collaborative activities Reflective practice Take home tasks/ independent study	Combination of the Northern Health post-program survey & Interprofessional Socialisation & Valuing Scale	Pre- & post-participation survey Post-session feedback survey Post-program focus groups No validated transition evaluation tool
Turpin et al. (2021)	OT Australia Public hospital Metropolitan	Qualitative Semi-structured interview	n = 9 EC = 7 Other = 2 Gender: NS	Vocational training program 1 year Induction over 3/12 Weekly education over 8 weeks Weekly formal supervision Peer supervision after 6/12	Community of practice Roles, responsibilities & teamwork IP collaboration & teamwork Safe practice training: falls, delirium, swallowing Professional socialisation Confidence Critical thinking and reflection	Situated learning Reflective practice Education sessions Formal & informal supports Formal & informal supervision Peer supervision/ buddy Formal induction Supervised practice	Performance Record for the Australian Competency Standards for Occupational Therapists Used 4 times for learning goals, needs, progress towards competencies	Post-participation semi-structured interview No validated transition evaluation tool

Study	Discipline/Location/Settings	Method	Sample	Intervention/Timeframe	Main Attributes/Content of Program	Modes of Learning	Measure of Transition/Skill Attainment	Program Evaluation/Validated Transition Evaluation Tool
Westervelt et al. (2018)	PT Australia/USA/NZ Public outpatient clinics Region unspecified	Mixed Survey & focus group	n = 16 EC = 11 Other = 5 Gender: NS	Online mentoring 4 x 1-hour sessions over 6 weeks 1 expert & 3 international EC per group	EC present spinal dysfunction patient case study x 1 hour Collaborative learning Critical thinking and reflection Professional socialisation	Case studies Group discussion	The Clinician Confidence Questionnaire for Patients with Spinal Pain The Clinician-Specific Outcome Scale	Pre- & post-participation survey & post-participation focus group No validated transition evaluation tool

Note: EBP = evidence-based practice, EC = early career, EP = exercise physiology, F = female, ID = interdisciplinary, M = male, NHS = National Health Service, NS = not specified, NZ = New Zealand, OT = occupational therapy, PE = physical education, P&O = prosthetics & orthotics, PT = physiotherapy, SP = speech pathology, SV = supervisor, SW = social work, VC = video conference, VDP = vocational dental practitioner, non-VDP = non-vocational dental practitioner

Multiple practice settings were documented in three studies, with most studies in public (Beldham-Collins & Milinkovic, 2009; Buning & Buning, 2019; Morley, 2009a, 2009b; Pare & Le Maistre, 2006; Portney & Knab, 2001; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021; Westervelt et al., 2018) ($n = 11$), private (Ali et al., 2016; Bullock et al., 2013; Pare & Le Maistre, 2006; Portney & Knab, 2001; Ralph et al., 2000) ($n = 5$), community or aged care (Morley, 2009b; Pare & Le Maistre, 2006; Portney & Knab, 2001; Skinner et al., 2021) ($n = 4$) or private hospital settings (Pare & Le Maistre, 2006; Portney & Knab, 2001) ($n = 2$). Study characteristics are detailed in Table 3.

Transition program characteristics

Most authors described transition interventions as 12-month programs focused on internship, professional development, preceptorship or vocational training (Ali et al., 2016; Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Morley, 2009a, 2009b; Portney & Knab, 2001; Ralph et al., 2000). In three studies, authors referred to mentoring or induction programs (Buning & Buning, 2019; Pare & Le Maistre, 2006; Westervelt et al., 2018) and five referred to new graduate programs, such as the Northern Health Interdisciplinary Graduate Program (Smith & Pilling, 2007, 2008), the Interprofessional Graduate Program (Sooful et al., 2020), the Dalang Project (Skinner et al., 2021) and an unnamed occupational therapy graduate program (Turpin et al., 2021).

Transition program timeframes

All studies focused on the first year of practice, with one extending beyond the first year (Sooful et al., 2020) and three commenced during the final year of entry-level study (Ali et al., 2016; Buning & Buning, 2019; Pare & Le Maistre, 2006). Program length varied between 3 and 13 months. The 13-month intern model allowed a 1-month cross over between new and outgoing novice physiotherapists (Portney & Knab, 2001). The length of program sessions ranged from 30 to 60 minutes (Buning & Buning, 2019; Turpin et al., 2021) to 2 hours (Beldham-Collins & Milinkovic, 2009; Smith & Pilling, 2007). Session frequency varied from weekly to three or four times per year, with support increasing or decreasing as required, dependent upon participant need (Buning & Buning, 2019; Smith & Pilling, 2007, 2008; Turpin et al., 2021). Authors of one study (Beldham-Collins & Milinkovic, 2009) suggested flexibility in timing and delivery of transition support programs to allow for the identification of new graduate learning needs.

Transition program content and modalities of learning

Generally, the content of transition programs was not described. In nine studies, there was limited program information, for example, main topics of each transition session (Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Buning & Buning, 2019; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021; Westervelt et al., 2018). Broad program objectives or aims, including exploration and understanding of new graduate transition programs, and amelioration of associated challenges were described in five studies (Ali et al., 2016; Morley, 2009a; Pare & Le

Maistre, 2006; Portney & Knab, 2001; Skinner et al., 2021). In one study, no detail was provided about program content (Morley, 2009b).

Opportunities for relationship building, professional socialisation and development of professional identity, discipline skill development and competency, and communication were most commonly included in transition programs. Less common were cultural competence, health promotion, conflict management, autonomous practice, research, stress management and rural work strategies. The frequency of opportunities for building professional and clinical skills and attributes identified in the studies is summarised in Table 4.

Table 4

Skills and Attributes Included in Transition Programs

Attribute	Number of Studies	Included Study
Relationship building, professional socialisation & development of professional identity	10	3, 4, 8, 9, 10, 11, 12, 13, 14, 15
Clinical/technical skill development & competency	9	1, 2, 3, 4, 5, 8, 9, 10, 14
Communication skills	9	1, 2, 3, 4, 9, 10, 11, 12, 14
Critical thinking/clinical reasoning	8	8, 9, 10, 11, 12, 13, 14, 15
Development of confidence	7	4, 8, 10, 11, 12, 13, 14
Reflective practice	6	5, 11, 12, 13, 14, 15
Teamwork	4	11, 12, 13, 14
Documentation	3	3, 11, 12
Business skills (management and leadership)	3	1, 4, 9
Collaboration	2	7, 14
Research skills & evidence-based practice	2	10, 11
Self-care & stress management	2	4, 13
Rural & remote work strategies	2	10, 13
Professionalism	2	1, 5
Autonomy	1	8
Conflict management	1	13
Health promotion	1	10
Cultural competency	1	10

Note: Ali et al. (2016) (1), Beldham-Collins & Milinkovic (2009) (2), Bullock et al. (2013) (3), Buning & Buning (2019) (4), Morley (2009a) (5), Morley (2009b) (6), Pare & Le Maistre (2006) (7), Portney & Knab (2001) (8), Ralph et al. (2000) (9), Skinner et al. (2021) (10), Smith & Pilling (2007) (11), Smith & Pilling (2008) (12), Sooful et al. (2020) (13), Turpin et al. (2021) (14), Westervelt et al. (2018) (15)

A variety of transition learning program models were identified, including reflective practice (Beldham-Collins & Milinkovic, 2009; Morley, 2009a, 2009b; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021), supervised practice (Ali et al., 2016; Buning & Buning, 2019; Morley, 2009a; Turpin et al., 2021), treatments in collaboration with an experienced clinician or supervisor (Bullock et al., 2013; Buning & Buning, 2019; Ralph et al., 2000), observing one's supervisor (Ali et al., 2016; Buning & Buning, 2019; Morley, 2009a, 2009b), case study analysis (Pare & Le Maistre, 2006; Portney & Knab, 2001; Westervelt et al., 2018), group discussion, activities and educational workshops (Morley, 2009a, 2009b; Portney & Knab, 2001; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021; Westervelt et al., 2018), tutorials (Beldham-Collins & Milinkovic, 2009), research projects (Portney & Knab, 2001), teleconferencing with supervisors and peers (Skinner et al., 2021; Westervelt et al., 2018) and independent study (Bullock et al., 2013; Portney & Knab, 2001; Smith & Pilling, 2007, 2008; Sooful et al., 2020).

Transition program data collection, outcome measures and evaluation

Multiple data collection methods were used: six authors used semi-structured interviews (Ali et al., 2016; Buning & Buning, 2019; Morley, 2009a, 2009b; Pare & Le Maistre, 2006; Turpin et al., 2021), five used focus groups (Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Pare & Le Maistre, 2006; Sooful et al., 2020; Westervelt et al., 2018), five used pre and/or post surveys (Buning & Buning, 2019; Portney & Knab, 2001; Skinner et al., 2021; Sooful et al., 2020; Westervelt et al., 2018), three used questionnaires (Bullock et al., 2013; Ralph et al., 2000; Sooful et al., 2020) and two used structured written feedback and open-ended text responses (Smith & Pilling, 2007, 2008).

A variety of transition program outcome measures were documented, including personal confidence and clinical performance (Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Morley, 2009a; Pare & Le Maistre, 2006; Portney & Knab, 2001; Westervelt et al., 2018) and retention rates (Portney & Knab, 2001; Skinner et al., 2021; Smith & Pilling, 2007; Westervelt et al., 2018) of novice allied health professionals. Formal tools used for assessment were: the Clinical Performance Instrument (Portney & Knab, 2001), the Knowledge and Skills Framework (Morley, 2009a), the Interprofessional Socialisation and Valuing Scale (Sooful et al., 2020), the Clinician Confidence Questionnaire for Patients with Spinal Pain and the Clinician-Specific Outcome Scale (Westervelt et al., 2018), the Dental Evaluation of Performance Tool and Patient Assessment Questionnaire (Bullock et al., 2013) and the Performance Record for the Australian Competency Standards for Occupational Therapists (Turpin et al., 2021).

Program evaluation was described in 13 studies (Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Morley, 2009a, 2009b; Pare & Le Maistre, 2006; Portney & Knab, 2001; Ralph et al., 2000; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021; Westervelt et al., 2018). None of the authors used standardised,

validated, allied health program evaluation tools. Graduate experience was evaluated using self-reported surveys or questionnaires (Bullock et al., 2013; Portney & Knab, 2001; Ralph et al., 2000; Skinner et al., 2021; Smith & Pilling, 2007; Sooful et al., 2020; Westervelt et al., 2018), interviews (Bullock et al., 2013; Morley, 2009a; Turpin et al., 2021) and post-program focus groups (Beldham-Collins & Milinkovic, 2009; Westervelt et al., 2018).

Thematic synthesis

Twenty-three common identified codes were grouped to form 10 sub-themes and clustered to form six major themes: “the roadblocks to success”, “give it time—developing attributes and competence”, “knowing my transition program supervisor”, “the value of feedback”, “the importance of supportive relationships” and “who am I?—developing professional identity”.

Theme 1: The roadblocks to success

Most commonly, transition programs addressed difficulties novices experienced with time management (Ali et al., 2016; Ralph et al., 2000; Smith & Pilling, 2007, 2008; Turpin et al., 2021), tight schedules in a fast-paced environment (Ali et al., 2016), increased workloads, which included complex clients (Ali et al., 2016; Morley, 2009b; Ralph et al., 2000; Smith & Pilling, 2008), reduced supervision (Ali et al., 2016; Morley, 2009b; Ralph et al., 2000; Smith & Pilling, 2008) and increased responsibilities, including performing complex clinical procedures (Ali et al., 2016; Smith & Pilling, 2007, 2008; Turpin et al., 2021).

Transition programs attempted to address contextual factors and reduce workplace stressors for the novice, for example, working in a new occupational team and environment (Ali et al., 2016; Pare & Le Maistre, 2006), poor attitudes from ancillary staff (Ralph et al., 2000) or perceived animosity from medical staff (Pare & Le Maistre, 2006). Both occupational therapists (Morley, 2009b) and social workers (Pare & Le Maistre, 2006) reported increased stress when colleagues lacked understanding of their professional duties. Living away from home and isolation were personal challenges for novice oral health professionals (Skinner et al., 2021). There was a lack of knowledge of novices about the systems where they were working. The need to understand different organisational documentation systems and a variety of essential paperwork (Buning & Buning, 2019; Ralph et al., 2000), understand business or private practice management (Ralph et al., 2000) and navigate the specific country’s health system (Smith & Pilling, 2007) increased the complexity of transition program content.

There was often a mismatch between the expectations and the realities of allied health practice. For example, novice dentists thought that their patients might not want to pay for extensive treatments by a young, inexperienced person (Ali et al., 2016), while radiation therapy graduates felt like they were a disruption to their department’s routine (Beldham-Collins & Milinkovic, 2009). Others expected that they would receive more

supervision and guidance (Morley, 2009a; Westervelt et al., 2018): “She expected that she should have supervision once a week, she should work for somebody who was a senior who worked every day, and she shouldn’t be left on her own to do things” (Morley, 2009b, p. 510).

Many authors stated that allied health graduates felt unprepared for the workforce (Ali et al., 2016; Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Buning & Buning, 2019; Morley, 2009b; Pare & Le Maistre, 2006), with one participant stating that “in the clinic I realised that not everything that you learn at university is applicable and you have to learn how to adapt to the situation” (Skinner et al., 2021, p. 4). New graduates and supervisors reported that education providers have a responsibility to their students to prepare them for the real-world working environment and not to protect them from the realities of the healthcare workforce (Ali et al., 2016; Buning & Buning, 2019; Morley, 2009b; Pare & Le Maistre, 2006).

Theme 2: Give it time—developing attributes and competence

There was agreement that a formal transition program assisted new allied health graduates in developing professional and interpersonal attributes and consolidating knowledge (Ali et al., 2016; Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Buning & Buning, 2019; Morley, 2009a, 2009b; Pare & Le Maistre, 2006; Portney & Knab, 2001; Ralph et al., 2000; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021; Westervelt et al., 2018). Year-long programs allowed graduates to “consolidate their learning and actually apply their knowledge and hopefully transfer that to becoming an expert” (Ali et al., 2016, p. 67). Programs assisted with developing autonomy, which enhanced critical thinking and clinical reasoning skills (Ali et al., 2016; Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Buning & Buning, 2019; Morley, 2009a; Portney & Knab, 2001; Ralph et al., 2000; Turpin et al., 2021; Westervelt et al., 2018): “The learners identified why they felt it was important to understand the underlying rationale of what they were doing ... being able to think for themselves, problem solve and be self-directed in the workplace” (Beldham-Collins & Milinkovic, 2009, p. 31).

Transition programs supported the development of professional attributes, including confidence (Ali et al., 2016; Bullock et al., 2013; Buning & Buning, 2019; Morley, 2009a; Portney & Knab, 2001; Ralph et al., 2000; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021; Westervelt et al., 2018), communication and relationship building (Ali et al., 2016; Buning & Buning, 2019; Morley, 2009a; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Turpin et al., 2021) and leadership (Buning & Buning, 2019). Greater responsibilities and leadership opportunities were made available with increasing competence (Buning & Buning, 2019). However, Smith and Pilling (2007) noted that gains in competence and confidence were predictable in early career professionals and occur “as a result of the passage of time as experience

grows, and it is difficult to identify the precise contribution of the program to this development” (p. 271).

Theme 3: Knowing my transition program supervisor

Transition program supervisors and mentors played a prominent role in the success of the transition of the novice allied health professional (Ali et al., 2016; Buning & Buning, 2019; Morley, 2009a, 2009b; Pare & Le Maistre, 2006; Turpin et al., 2021). Supervisors described program supervision as a gratifying experience that facilitated their own skill development (Pare & Le Maistre, 2006; Portney & Knab, 2001; Smith & Pilling, 2007). Pare and Le Maistre (2006) reported that newcomer relationships had a rejuvenating effect on supervisors: “Expert clinicians found great value in this experience for novices, for themselves as mentors, and for the profession as a whole” (Westervelt et al., 2018, p. 177).

There were varying amounts of experience among mentors as transition program supervisors and as clinicians. Mentors and allied health graduates noted inconsistencies during transition program educational delivery and during mentorship facilitation (Ali et al., 2016; Beldham-Collins & Milinkovic, 2009; Bullock et al., 2013; Buning & Buning, 2019; Morley, 2009b; Pare & Le Maistre, 2006; Ralph et al., 2000). Buning and Buning’s (2019) participants reported that “novice therapists placed more emphasis on the need for a mentor who has confidence in what they are doing, because if they have no idea what they are doing then that’s going to transfer onto [them]” (p. 251). In the initial months of the novice job role, “the best supervisors we witnessed in the workplace—that is, the ones considered most effective by newcomers—acted not as experts with knowledge to transmit, but as facilitators with sensitivity to the needs of newcomers, awareness of their current level of comfort and expertise, and knowledge of the places, people, and events in the community that would help advance a newcomer’s development” (Pare & Le Maistre, 2006, p. 373).

Theme 4: The value of feedback

Normative or formative feedback from mentors or informal feedback from colleagues was important in transition programs to assist novice professionals’ progress (Ali et al., 2016; Beldham-Collins & Milinkovic, 2009; Buning & Buning, 2019; Morley, 2009a, 2009b; Turpin et al., 2021; Westervelt et al., 2018). New graduates highlighted the importance of regular feedback and communication in skill development, knowledge and confidence, however “mentors should deliver feedback in an encouraging yet constructive manner when trying to address novice therapists’ performance or questions” (Buning & Buning, 2019, p. 251). Acknowledging and accepting one’s level of expertise and knowledge aided the novices in accepting feedback because “as a new grad you aren’t going to know everything that you are doing. You are going to have to be able to take criticism, take the learning that the mentor is giving you” (Buning & Buning, 2019, p. 252). Transition program mentors agreed that the new allied health graduate needs to be willing and open to taking feedback and constructive criticism and that “feedback must not be solely regarded as a responsibility of the trainer” (Ali et al., 2016, p. 70).

Theme 5: The importance of supportive relationships

Positive peer support and sharing of transitional experiences with other novice professionals were evident in transition to practice programs (Ali et al., 2016; Buning & Buning, 2019; Morley, 2009a, 2009b; Ralph et al., 2000; Skinner et al., 2021; Smith & Pilling, 2007, 2008; Turpin et al., 2021; Westervelt et al., 2018). Sharing like experiences and “the social interaction with their peers, enabling them to compare experiences and to receive support was a major advantage” (Ralph et al., 2000, p. 103). Discussing experiences was important (Morley, 2009b) and developing camaraderie provided reassurance that others were also experiencing feelings of “inadequacy and uncertainty” (Smith & Pilling, 2007, p. 271). Learning from others’ experiences gave participants the confidence to try new things in their practice settings and know that they were “on the right track” (Westervelt et al., 2018, p. 174) and working at the appropriate skill level.

Receiving adequate amounts of support from transition program supervisors and other staff members in the initial period was deemed to be “crucial for a seamless transition ... [particularly] when the work environment and colleagues seem unfamiliar” (Ali et al., 2016, p. 68). Findings in dentistry were similar to those reported by authors in occupational therapy (Morley, 2009a, 2009b; Turpin et al., 2021), emphasising the “importance of new practitioners having access to [supervisors]” and being given time and “high levels of contact” (Morley, 2009b, p. 510) to develop a trusting, supportive relationship (Morley, 2009a, 2009b).

The development of a multi-disciplinary peer support network within a transition program was highly valued by novice dentists (Bullock et al., 2013; Ralph et al., 2000), physiotherapists (Portney & Knab, 2001; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Westervelt et al., 2018), occupational therapists (Morley, 2009a, 2009b; Smith & Pilling, 2007, 2008; Sooful et al., 2020; Turpin et al., 2021), speech pathologists (Smith & Pilling, 2007, 2008; Sooful et al., 2020), social workers (Pare & Le Maistre, 2006; Smith & Pilling, 2008), podiatrists (Smith & Pilling, 2007, 2008; Sooful et al., 2020), dietitians (Smith & Pilling, 2008) and exercise physiologists (Smith & Pilling, 2008). Smith and Pilling (2007) reported that interprofessional peer networks assisted in decreasing “emotional isolation ... particularly when moving to a new campus of the health service in the rotation system, making this less daunting” (p. 273). Peer networks did not have to be face to face, with small online group clinical mentoring showing success (Westervelt et al., 2018).

Theme 6: Who am I?—developing professional identity

Developing communities of practice within transition programs allowed new allied health graduates to be welcomed, immersed and supported within their discipline-specific community (Pare & Le Maistre, 2006). Members needed to feel that they were respected, valued and listened to. Observing and learning from professional role models assisted with developing professional identity (Ali et al., 2016; Morley, 2009a, 2009b; Pare & Le Maistre, 2006; Portney & Knab, 2001; Ralph et al., 2000; Turpin et al., 2021); “those

with limited access to professional role models felt that this had a negative impact on their professional identity and confidence” (Morley, 2009a, p. 390), and these graduates “were more reluctant to seek advice and had a more stressful transition” (Morley, 2009b, p. 512).

Some new graduates had idealistic and unrealistic expectations about the role of their profession, which affected their success and caused undue stress. However, with greater experience and involvement in the transition program, insight into one’s professional identity was developed (Smith & Pilling, 2007). A cohesive work community allowed new graduates to “discover a gratifying degree of shared values and beliefs, a relatively harmonious approach to practice, clear indications of status relations, and welcoming colleagues” (Pare & Le Maistre, 2006, p. 376).

Discussion

The aim of this systematic review was to address a major gap in knowledge of the characteristics of transition to practice programs for early career allied health professionals, outcomes from these programs, how they are measured and how transition challenges are addressed in transition programs. The allied health graduate pipeline is integral in building a sustainable, effective and diverse health workforce (WHO, 2016), and transition and transition to practice programs should demand greater attention. In allied health, adaptation to a new environment and work role (Trysennar & Perkins, 2001) or occupational adaptation (Kielhofner, 2002) has been linked with professional socialisation and being an active member of a professional group.

Challenges in allied health transition identified in this review included a mismatch between the expectations and the realities of practice; new work role challenges, such as taking full responsibility for patient care with less supervision and guidance; and time management in a fast-paced, complex environment. These issues align with many of the challenges identified in a recent review of new graduates in occupational therapy (Moir et al., 2021) and reinforce the need for transition support. In our review, there were limited descriptions of transition programs and a lack of consistency in the content, delivery mode and program duration. Authors of earlier studies in allied health (Smith & Pilling, 2007) and nursing (Rush et al., 2019) reported similar findings, which indicates a continuing need for clear reporting on transition program detail and outcomes.

Over a decade ago, Duchscher (2008) described the clash between university practice ideals and the institutional realities of the health system. In a recent study (Moir et al., 2022), new graduates in occupational therapy drew on their university experience in practice and brought knowledge of contemporary practice to the workplace. It remains unclear whether the theory practice gap and reality shock reported in medicine and nursing are significant in allied health and if contemporary changes to allied health curricula, such as increased simulation and changes to assessment practices (Heuer et al., 2022), impact graduate experiences. Changes to the workplace (e.g., in Australia, the introduction of the National Disability Insurance Scheme) have increased the numbers

of positions for allied health professionals in private and non-government organisations (Moir et al., 2021), however university responsiveness can be difficult, as curricula change takes time. These changes reinforce the need for strong collaboration between universities and the health industry in designing, delivering and evaluating transition to practice programs across contemporary workplace settings.

The lack of alignment of program development with transition theory in this review echoes a recent systematic review of graduate transition interventions in nursing (Kenny et al., 2021). The authors (Kenny et al., 2021) used Duchscher's theory to describe the movement of new graduates through the steep learning "doing" phase (Months 1 to 4), questioning of identity "being" stage (Months 4 to 5) and the "knowing" stage at Months 6 to 8, when new graduates gain greater confidence and socialisation to the workplace. Whether this theory applies in allied health is unknown, but new allied health graduates in our review described the need for more support in the first 6 months and when transitioning to new work areas, where ramping up of support was beneficial. Exploration of the most appropriate timeframe for transition programs would add to knowledge in this field.

The use of a 12-month vocational training program to facilitate transition was the most used intervention in this review, with mentoring and induction. This form of guidance and support may be comparable to an apprenticeship in other professions (Plack, 2008). Plack (2008) argues that while a key component of learning is engagement in clinical practice, it cannot occur without formal mentoring from a supervisor. Buning and Buning (2019) also argue that good mentorship includes the qualifications and experience of the supervisor and personal attributes conducive to positive relationship building.

In this review, transition program supervisors played a pivotal role as mentors and role models. A mutually beneficial relationship between graduates and supervisors has been reported in other reviews (Kenny et al., 2021), where supervisors describe further honing of their skills through support and education activity. Honest and regular feedback between supervisor and graduate was highlighted in this review. Further research is needed to fully understand the impact of transition program mentor/mentee pairing and supervisor experience to optimise the novice's development.

Professional socialisation, professional identity and communities of practice are vital components of transition (Buning & Buning, 2019; Turpin et al., 2021), yet where novice allied health professionals work as sole practitioners, opportunities to develop important attributes of professional practice through networking and role modelling may be more limited (Morley, 2009b). Developing a peer network of novice allied health professionals is beneficial in transition programs (Turpin et al., 2021), and strategies to address socialisation and role modelling for sole practitioners must be considered. In our review, the majority of transition interventions were in the public sector. The need to consider graduates in private, non government and emerging roles has been reinforced by others (Moir et al., 2021).

In the studies reviewed, transition intervention success was primarily measured by self report. No studies used specific outcome measures for successful transition, and no study reported how a transition program would compare with unsupported or informal transition support. The conduct of transition programs can be resource intensive, and some programs have commenced and ceased within a few years due to budgetary constraints (Skinner et al., 2021). Further research is needed to quantify cost–benefit for health services.

Clinical skill competencies, confidence levels, communication skills, professional identity and retention were used as proxy indicators of transition success. Smith and Pilling (2007) note that increasing confidence and competence may not be accurate indicators of transition success, as these might occur due to the natural passage of time. Well-designed longitudinal studies are recommended as a next step.

Not all allied health professions were represented in this review. Many studies were conducted in physiotherapy, occupational therapy and dental professions. Studies in a broader range of disciplines and across a diversity of countries and settings would be advantageous. Rural studies were not well represented, reinforcing the paucity of research about rural transition in allied health (Kumar et al., 2020). This should be addressed.

There were no quantitative studies eligible for inclusion in the review, indicating the need for different methodologies and methods aligned with different research questions. Although included qualitative studies were deemed adequate through quality appraisal, only 20% of authors stated a clear research question. Authors of mixed-methods studies provided an adequate rationale for the approach, however integration of data, the hallmark of mixed-methods studies, was not done well and should be addressed in future studies (Morse, 2016).

Limitations

Reproducible systematic reviews are limited by search terms chosen, review methods and reviewer subjectivity. However, consistent reporting using PRISMA guidelines adds to the rigour of this review. A lack of high-quality quantitative studies made meta-analysis impossible, but a comprehensive thematic synthesis was completed. Allied health disciplines included in the search for this review were drawn from the Australian Health Practitioner Regulation Agency, Allied Health Professions Australia and national and international bodies. A review of different allied health disciplines might have yielded different results.

Conclusion

The lack of knowledge on allied health transition and transition interventions provided the major rationale for this review. While a small number of studies met the inclusion criteria, inadequate study designs, poor reporting and limited settings impacted the conclusions that could be drawn. Ongoing support for allied health professionals is

essential at all stages of their careers. The attention given to supporting the newest entrants can have long-term positive impacts on retention rates and professional satisfaction. New graduate allied health professionals are key to a sustainable future health system, and robust research on their transition experiences and outcomes is urgent and long overdue.

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Appendix 1

Medline Search Strategy

1	allied health personnel.mp.	11,939
2	allied health professionals.mp.	1,768
3	(physiotherap* or physical therap*).mp.	72,151
4	paramedic*.mp.	8,245
5	Chinese medicine.mp.	25,938
6	(psychology or psychologist*).mp.	1,216,100
7	Occupational Therapy/	13,298
8	occupational therap*.mp.	20,159
9	(podiatry or podiatrist*).mp.	3,328
10	Chiropractic/ or chiropract*.mp.	7,286
11	"Aboriginal and Torres Strait Islander health practice".mp.	2
12	(dentists or dental practitioners or dental professional*).mp.	40,411
13	Optometrists/ or Optometry/ or optometr*.mp.	7,823
14	osteopath*.mp.	7,544
15	(pharmacy or pharmacist or pharmacists).mp.	83,551
16	medical radiation.mp.	838
17	medical imaging.mp.	9,406
18	radiation therap*.mp.	79,205
19	audiologist*.mp.	1,617
20	audiology.mp. or Audiology/	4,122
21	social work*.mp.	27,483
22	speech pathologist*.mp.	775
23	speech language patholog*.mp.	5,049
24	speech therap*.mp.	8,574
25	dietitian*.mp.	6,317
26	dietician*.mp.	1,848
27	exercise physiologist*.mp.	327
28	respiratory therap*.mp.	8,729

29	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28	1,605,435
30	New Graduates.mp.	1,054
31	New Graduate Role.mp.	4
32	College Graduates.mp.	716
33	graduate.mp.	64,623
34	(first adjl year*).mp.	60,384
35	early career.mp.	1,853
36	neophyte.mp.	225
37	beginner*.mp.	2,191
38	novice*.mp.	9,997
39	((newly or recent*) adjl qualified).mp.	940
40	final year student*.mp.	692
41	4th year student*.mp.	136
42	fourth year student*.mp.	798
43	30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42	140,031
44	"Transitional Programs".mp.	33
45	transition* program*.mp.	817
46	"transition* to practice".mp.	468
47	support program*.mp.	3,830
48	"Mentorship".mp.	4,080
49	Mentoring/ or Mentors/ or mentor*.mp.	22,374
50	"Employee Orientation".mp.	56
51	orientation.mp.	156,607
52	44 or 45 or 46 or 47 or 48 or 49 or 50 or 51	183,372
53	29 and 43 and 52	1,740

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