

Advanced Practice for children & young people: a systematic review with narrative summary

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Abstract

Aim

To critically appraise and synthesis the current evidence related to Advanced Practice Nurses (APNs) within the children and young people's healthcare setting.

Background

A complex landscape of demand and change has influenced healthcare delivery for children and young people. In the United Kingdom and internationally, governments have endorsed the need for workforce innovation with advanced nurse practice roles introduced to counter these challenges. However, little is known about the impact of these initiatives within the context of children and young people's healthcare.

Design

Systematic review and narrative summary

Data Sources

CINAHL, MEDLINE, DARE, PubMed, Prospero and Cochrane Database of Systematic Reviews were searched for studies published in English language from July 1998-2018. Studies were selected based on key search terms and eligibility criteria

Review methods

The selected studies were appraised using the Effective Public Health Practice Project for quantitative studies. An adapted version of the JBI data extraction tool for experimental/observational studies was used to extract the relevant key findings. This was conducted independently by two researchers.

Results

Nine studies were included in the review. The review demonstrated roles were comparable in their clinical practice to medics yet offered higher levels of patient satisfaction, role modelling for staff and led practice initiatives to improve health literacy.

Conclusion

This review demonstrates that APN roles in children and young people's healthcare provide clinical, organisational and professional benefits, with added value to organisations and patients, acting as role models and educators.

Impact

The findings from this review indicate further research is required to ascertain contextual issues that may influence the implementation of APNs. This research will impact APNs working with children and young people. Equally, it supports the evidence base for service commissioners outlining areas for future research.

Keywords Systematic review, narrative summary, Advanced Practice Nurse, Children and Young People, Nurse Practitioner, Pediatric Nurse Practitioner, Impact.

Introduction

The last three decades has borne witness to considerable advances in improving the health of children and young people (CYP). Despite this, many countries report increased incidence of chronic disease, mental ill health and levels of mortality related to preventable causes, (Royal College of Paediatrics and Child Health, 2017; World Health Organisation, 2018). In the United Kingdom and internationally, governments have endorsed the need for workforce innovation to counter these challenges. This has led to the evolution of Advanced Practice roles for nurses within the context of children and young people's healthcare. However, little is known about the impact of these initiatives within this setting and it is of interest to service planners and stakeholders alike to evaluate the current literature.

Background

Every child has the right to access quality health care that will meet their differing needs (Kossarova, Devakumar, and Edwards, 2016; World Health Organisation, 2018) and, with a complex landscape of rising demand and workforce shortages, this has necessitated innovation in models of provision for CYP, (Imison, Castle-Clarke, and Watson, 2016; WHO, 2016; Scottish Government, 2016). Nurses are essential in realising and delivering this change and have embraced this challenge by assuming new and enhanced responsibilities through advanced practice roles (Health Education England, 2018; Scottish Government, 2017; World Health Organisation, 2016).

Advanced nurse practice has had an evolutionary history and debate continues regarding issues of variance in definition, regulation, educational preparation and governance (Barton and Allan 2015; Duke 2012; Morgan et al 2012; Rolfe 2014). Internationally, the pace of implementation has varied with an array of nomenclature and scope of practice, (Bryant-Lukosius et al 2004; Pulcini, Jelic, Gul & Yuen, 2010). In most English speaking countries, the title nurse practitioner (NP) and/or 'catch all term' advanced practice nurse (APN) appears to be the predominant title (Pulcini, Jelic, Gul & Yuen, 2010). In the United Kingdom (UK), there is a consensus that advanced practice is a level assumed rather than a title, characterised by high levels of autonomy and critical clinical decision making (Health Education England, 2018; Scottish Government, 2016). The International Council of Nurses (2008) (ICN) suggests APNs are registered practitioners who have acquired an expert knowledge base through masters level education underpinned by the ability to make complex clinical decisions.

However, concerns that acquisition of knowledge and skills beyond traditional professional boundaries may not recognise the unique contribution of the nursing profession have been raised, (Rolfe, 2014). Similarly, ensuring adequate, sustainable models of education along with practice supervision for advanced roles has been challenging, (Morgan, Barry and Barnes, 2012). Still, benefits are well publicised with a wide breadth of evidence

indicating APNs result in positive outcomes. This includes proven clinical equivalence to medics, increased patient satisfaction, improved access to care, cost efficiencies and service sustainability, (Bryant-Lukosius 2010; Caird et al 2010; Donald, Martin-Misener, & Carter, et. al, 2013; Lovink, Persoon, & van Vught, et. al, 2017; Tsiachristas, Wallenburg & Bond, et. al., 2015). However, the existing research focuses predominantly upon the impact of roles amongst adult populations. To date there is no published review of APN roles in a CYPs setting frustrating attempts to reach a consensus on the contribution these make.

Objective(s)

To systematically review primary research related to the advance practice nurse role in the CYPs healthcare setting. For the purposes of the review, the term advanced practice nurse (APN) will be referred too throughout. The review questions were:

1. In what ways are APN roles employed in the healthcare setting for CYP?
2. What are the benefits and/or challenges of using these roles within the CYP setting?
3. What impact do these roles make on service and service users within the CYP setting?

Methods

Design

The review is reported as per the Joanna Briggs Institute (JBI) manual for Systematic Reviews, (Aromataris, and Munn, 2017), and as endorsed by JBI, the authors also referred to the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) statement, (Moher, Liberati, Tetzlaff and Altman, 2009). A meta-analysis was not performed due to the heterogeneity and disparate range of evidence, instead a narrative summary of available papers was conducted.

Study Selection

A systematic search of the literature was conducted from May to July 2018. The following databases were searched; Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline and Pubmed. In addition, a search for previous systematic reviews was conducted by accessing the databases, Prospero, Cochrane Database of Systematic Reviews and the Database of Abstract of Reviews of Effects (DARE). The databases chosen were selected to capture key nursing and medical literature. A limit of twenty years was applied (*July 1998- July 2018*) to encompass the developments in political and strategic policy surrounding workforce development from a UK and international context. To aid the development of key search terms (see *Box 1*), we used the PICO (Population, Intervention and Context) tool, (Aveyard, 2014; Moule and Goodman, 2014). Boolean terms including truncation were applied but MeSH terms were not utilised so not to reduce the

number of potential studies. A hand search of appropriate identified literature was performed but grey literature was not engaged with as the review focussed solely on peer reviewed work.

Box (1) Key Search Terms

Infant and/or Child and/or Young People, Pediatric/Paediatrics, Nurse Practitioner and/or Advanced Nurse Practitioner and/or paed/pediatric nurse practitioner in addition to healthcare and/or acute care, unscheduled care and/or primary care and/or hospital and/or community care.

Study Eligibility

The inclusion criteria included international peer reviewed primary research studies, published in English language. We were interested in APN roles solely employed within a CYPs healthcare setting caring for the CYP population, post neonatal period (>28 days) to 18 years of age. Further detail of eligibility is presented in **Table 1**.

Table 1: Eligibility Criteria

Search Outcomes

A total of 5,185 titles were examined by RH with 5,135 excluded as not relevant to the aim of the review. Subsequently, two reviewers (RH and SMcV) independently scrutinised the remaining 50 titles with abstracts. A further four were excluded with the remaining 46 considered eligible for full text review. A total of 37 were excluded with reasons, leaving nine studies for inclusion. The common reason(s) for exclusion were; grey literature, dealing with populations of non interest (i.e. adult) or non-English language, duplicates or no abstract available. No systematic reviews, meta-analysis or meta-ethnographies were identified. As a team, any discrepancies were discussed and consensus reached. **Figure 1**. outlines the process of study selection.

Figure 1. Process of Study Selection

Quality Appraisal

We selected the Effective Public Health Practice Project (EPHPP) (1998) for quantitative studies. This was chosen as the authors had prior experience of use, allowed one tool to be used to appraise all included studies, whilst a rating for quality of evidence overall could be reached, (Armijo-Olivo, Stiles, Hagen, Biondo and Cummings, 2012). The quality appraisal of the included studies was conducted independently by two reviewers (RH and TH), again with any discrepancies discussed as a team (RH, SMcV and TH). A summary of the studies and overall quality of evidence rating can be found in **Table 2**.

Table 2. Summary of Included Studies & Overall Grade for Quality of Evidence

Data Extraction

The data from the nine studies were extracted independently by two reviewers with discrepancies discussed as a team. To reduce the risk of bias and missed data, an adapted version of the JBI data extraction tool for experimental/observational studies was used, (JBI, 2014).

File 1: & File 2:

File 1. Included Studies – Key Results **File 2.** Quality Appraisal of Included Studies

Data Synthesis

The nine included studies were heterogeneous in nature with a mix of quantitative experimental and quantitative non-experimental descriptive designs reporting on a range of outcomes. None of the studies reported statistical data consistently, therefore findings were synthesised narratively through textual description offering an effective approach in identifying commonalities, bringing coherence to a heterogeneous body of evidence (Campbell, Katikerreddi, Sowden, McKenzie, and Thomson, et. al., 2018). Textual description of the studies identified prevailing outcomes and these were amalgamated in relation to similarity of the outcome concept being measured. The robustness and trustworthiness of the analysis, was assessed through discussion between the authors. Collectively, we identified 3 overarching key concepts of outcome, as follows: - 1) clinical processes and outcomes (*case management, guideline adherence, prescribing practice, complications and clinical education*); 2) organisational performance (*length of stay, readmission/representation rates, referral rates, ICU activation rate, access to care and direct care costs*); 3) patient/family and staff experiences.

Results

Study Characteristics

The majority of the papers originated from the USA (n=7), with a further (n=2) from the Netherlands. There were no UK studies identified for inclusion. A total of six were non-experimental quantitative descriptive design, (Borgmeyer, et. al., 2008; Evangelista, et. al., 2012; Kinder, 2016; Martin, 1999; Retjar, et. al 2017; Wall, et al., 2014). The remaining were quantitative experimental; one controlled trial, Fanta, et al., (2006), one randomised controlled trial, Schuttelaar, et. al., 2010), and one retrospective observational cohort study, (Van Vugt, et. al., 2018). The studies examined roles working across a range of clinical settings; specialist clinic practice, Evangelista, et. al., (2012), Schuttelaar, et. al., (2010); primary care practice (n=2), Kinder, (2016), Van Vugt, et. al., (2018); and hospital based (n=5), Borgmeyer, et. al., (2008), Fanta, et. al., (2006), Martin, (1999), Retjar, et.al., (2017), Wall, et. al., (2014). **Table 2** provides an overview of the included studies with further details available in **File 1**.

Methodological Quality

The assessment details of methodological quality for each of the included studies is presented in **File 2** with an overall grade for the quality of evidence offered in **Table 2**.

Two studies applied randomisation when recruiting participants to their studies, (Fanta, et al., 2006; Schuttelaar, et al., 2010). However, Fanta, et al., (2006) may have introduced an element of bias through their study design, with the on-call rota allowing participant's greater exposure to APN care compared to medical led care. Similarly, in the later study by Schuttelaar, et al., (2010), patients were randomised to contrary treatment arms with those seen by the APN offered additional time for education. These incidences were not explored or acknowledged to be a risk for bias by the authors. The remaining seven studies did not randomise participants but opted for purposive sampling techniques, (Borgmeyer et al, 2008; Evangelista, et al., 2012; Kinder, 2016; Martin, 1999; Van Vugt et al, 2018; Wall et al, 2014). It should be acknowledged, this may allow vulnerability for errors in researcher judgement, lower levels of reliability, challenge generalisation of findings and increase the potential for confounders, (Creswell, 2014).

The presence of potential confounders was acknowledged in two studies with attempts to address these described, (Kinder, 2016; Van Vugt, et al., 2018). In the remaining seven studies, potential confounders were considered possible but were not clearly identified or addressed by the authors, (Borgmeyer et al, 2008; Evangelista, et al., 2012; Fanta, et al., 2006; Martin, 1999; Rejtar et al, 2017; Schuttelaar, et al., 2010; Wall et al, 2014).

All nine studies validated findings further with other methods of data collection, (Borgmeyer et al, 2008; Evangelista, et al., 2012; Fanta, et al., 2006; Kinder, 2016; Martin, 1999; Rejtar et al, 2017; Schuttelaar, et al., 2010; Van Vugt et al, 2018; Wall et al, 2014). Nevertheless, only three studies clearly discussed techniques applied to strengthen the reliability of their results, (Kinder, 2016; Schuttelaar, et al., 2010; Van Vugt et al, 2018).

Findings

The results of the included studies with any statistical conclusions are summarised in **File 1**. We used textual descriptions to categorise the studies with key themes related to outcomes.

Clinical Processes & Outcomes Case management

Fanta, et. al., (2006) compared APNs with medical residents in trauma care; the APNs achieved comparable practice with medical residents, missing no injuries in children presenting with a range of minor to major injuries. Similarly, the earlier retrospective study by Martin (1999), examined the APN role alongside medics in paediatric intensive care (PIC). In relation to medical residents, they found comparability in practice; this focussed

specifically on nutritional management, (Martin, 1999). Both APNs and medical residents documented growth in 60% of cases however there was a disparity in prescribing adequate calories. The author shared that 16% of APNs inadequately prescribed calories yet all APNs charted why this was the case. In contrast, 44% of medical residents inadequately prescribed calories with 28% of the charts having no explanation, (Martin (1999).

Guideline Adherence and Prescribing Practice

Two of the included studies examined compliance with guidelines for specified illnesses, (Van Vugt, et al., 2018; Wall, et. al., 2014). Van Vugt, et. al., (2018) compared APNs versus general practitioners (GPs) care for children presenting with respiratory tract infections (RTIs). The authors reviewed (535) consultations for compliance with guidelines; no statistical difference was found between APNs and GPs adherence or then prescribing practice. However, there were notable differences in baseline characteristic between the groups with GPs more likely to see children with severe illness. This was explained to be as a result of the triage system in place locally, (Van Vugt, et al., 2018). In the same way, Wall, et. al., (2014), reported equitable compliance with guidelines in their earlier study of in-patient care. They examined practice surrounding the care for bronchiolitis, asthma and pneumonia with no difference found in care led by either APN teams or APN/Physician led teams or resident led teams, (Wall, et. al., 2014).

Case complications

Three studies examined the rate of complications arising from illness, drawing comparisons with medics, each concluding no statistical difference in arising complication rates between those patients seen by a nurse or a medic, (Fanta, et. al., 2006; Van Vugt, et. al., 2018; Wall, et. al., 2014).

Clinical Education

Borgmeyer, et. al., (2008), sought to evaluate a specialist APN role in providing staff and families' education in relation to asthma. A total of 41/44 attending physicians agreed the APN role for asthma provided appropriate discharge education whilst 36/44 agreed the APNs offered effective role models for intern (junior) medical staff. Indeed, an improvement in intern medical staff knowledge measured using a pre and post-test technique was observed. The authors report scores improved from 55% pre-test to 80% post-test yet it should be noted this was based on 12 participants appose to the 28 who had initially undertaken the pre-test. It was unclear why there was this discrepancy. Similarly, (n=46/47) staff nurses surveyed agreed that APNs offered education regarding asthma which enabled them to more effectively educate families as well as reporting the APN provided an effective role model. Finally, several of the families questioned 49/52 agreed that the APNs adequately explained the hospital plan of care and supported discharge education.

These results are echoed in the later study by Kinder, (2016). The author found that out of 91 parents questioned 61.5% felt the APN had increased their knowledge of their child's condition whilst 46.6% stated the APN was the best health educator. It is worth noting that in this study, families presented for both well and sick child reviews. However, results were not differentiated between the types of visits, although the author explained the majority were for well child reviews.

Organisational Performance(s)

Length of Stay (LoS)

Borgmeyer, et. al., (2008) found no significant differences in LoS when comparing care for patients with asthma between nurses or doctors yet the later study by Wall, et. al., (2014) indicated a statistical difference. It was noted resident led care prolonged hospitalisation when compared to care led by APN/Physician led teams), (Wall, et. al., 2014). This was echoed in the earlier study by Fanta, et. al., (2006) were authors also shared a prolonged LoS with resident led care. Conversely, Martin, (1999) reported longer LoS rates for nurse led care in the ICU setting, suggesting this related to the APNs seeing patients of a higher level of acuity.

Readmission, return and referral rates

Two studies reviewed readmission and return rates for presenting patients, (Borgmeyer, et. al., 2008 and Van Vugt, et. al., 2018). Borgmeyer, et. al., (2008) noted no difference in readmission rates yet Van Vugt, et. al., (2018) observed higher return rates in the APN group of their study. The authors identified the confounder for this was the presence of wheeze. Again, in this study referral rates were reviewed with no difference in rates of referrals made by APNs or GPs with severity of illness shared as the confounder for the actual number of referrals made between both practitioner groups, (Van Vugt, et. al., 2018).

ICU activation

Retjar, et. al., (2017) was the only study that examined ICU activation rates. This was used as a measure of organisational impact following introduction of a new model of APN care. The authors reported ICU activation rates had reduced from 100% pre model to 50% then 64% post respectively, (Retjar, et. al., 2017). Data was collected over a period of 22 months. The rise in post model data was not explained nor was there any differentiated results to demonstrate how many of the activations were associated with APN or medical led care, (Retjar, et. al., 2017).

Access to care

Evangelista, et. al., (2012) was the only study which examined the concept of access to care. This was a single centre study of APN managed cardiology clinics, reviewing access to third, next and urgent appointments. They did not report a statistically significant result however a small decrease in wait times for third available or next non urgent appointments was achieved from 46 to 42 days. The authors explained the limited result as a consequence less available APN managed clinics per month.

Direct Care Costs

A total of three studies, Borgmeyer, et. al., (2008); Fanta, et. al., (2006) and Wall, et. al., (2014) considered direct care costs between nurse and medical delivered care, although detail provided was inconsistent amongst the studies. Borgmeyer, et. al., (2008) reported there was no significant differences for aggregate room charges, pharmacy, laboratory, supplies or radiology costs between APN or medical led care. Fanta, et. al., (2006), noted no statistical cost differences on comparison between APN and medical led care for ISS or cost of patient care. They did not elude to what ISS referred to in their study. Wall, et. al., (2014) indicated no statistical difference between the differing teams of APN, resident or APN /attending led care for use of diagnostics yet the direct cost of care per patient was significantly less for APN led versus APN /attending led care. Similarly, the direct care cost per patient encounter provided by the APN team alone was significantly less than the resident teams for asthma and pneumonia yet not statistically different for bronchiolitis. It was noted, resident teams saw far more patients than the APN teams yet this was not considered as a potential confounder by the authors, (Wall, et. al., 2014).

Patient and/or Family Experience of Care

A comparable aspect to many of the studies was experiences of patients and/or families cared for by APNs, with (n=6) studies examining satisfaction, (Borgmeyer, et. al., 2008; Evangelista, et. al., 2012; Fanta, et. al., 2006; Kinder, 2016; Martin, 1999; Schuttelaar, et. al., 2010). Borgmeyer, et. al., (2008) reported families felt they received a good level of care by APNs. Findings echoed by Kinder (2016) who indicated APNs were considered by parents to be equitable to physicians in providing care. Moreover, patients reported that APNs increased their knowledge and influencing decision making related to their child's condition, (Kinder, 2016). Similarly, the author found APN clinical competence had a strong correlation to patient/parental intent to adhere to treatment yet did not indicate how clinical competence had been measured, (Kinder 2016). Finally, in the earlier study by Fanta, et. al., (2006) APNs scored significantly higher than their medical counterparts for listening to parental concern.

A total of three studies reported an overall high patient/family satisfaction rate with APNs, (Fanta, et. al., 2006; Martin, 1999; Schuttelaar, et. al, 2010). There was only (n=1) study which reported no difference in overall levels of satisfaction between APN and physician led care, (Evangelista, et. al., 2012).

Staff Experience of Care Provision

Again, three studies explored staff experience of care provision by APNs, (Borgmeyer, et. al., 2008; Martin, 1999; Retjar, et. al., 2017). Borgmeyer, et. al., (2008) surveyed both experiences of medical and nursing staff. A total of (n=44 of 78) (56%) attending physicians reported that APNs managed asthma patients appropriately using effective plans whilst (98%) agreed that APNs communicated patient care and found consults helpful, (Borgmeyer, et. al., 2008). Similarly, all intern medical staff reported APNs decreased their workload and managed care well though it was unclear whether reduced workload was an intended or unintended outcome from utilising the APN role, (Borgmeyer, et. al., 2008).

Martin, (1999), indicated staff were satisfied with care delivered by APNs yet the data breakdown of nursing staff responses contradicted this statement. Indeed, of the (n=27) staff questioned, 66.7% indicated patients rarely received appropriate care by the APN whilst 59.3% shared they felt continuity of care was never achieved. These findings are not acknowledged by the author.

Finally, Retjar, et. al., (2017), reported staff were either very satisfied or satisfied with APNs, (Retjar, et al., 2017). Their survey allowed free comment from nursing staff which indicated APNs offered continuity and timely access to care although concerns were shared with regard to the variability in knowledge and experience of APNs, (Retjar, et. al., 2017).

Discussion

This review suggests APNs for CYP are employed across a variety of settings. In doing so, they offer clinical, organisational and professional benefits. This is echoed in much of the existing literature, (Casey, O'Connor, and Cashin, et al., 2017; Donald, Martin-Misener, and Carter, et al., 2013; Pulcini, Jelic and Gul, et al., 2010). Clinically, many studies reported practitioner equivalence to medics in the provision of direct care. Findings indicated APNs performed well with no differences found in comparison to medics. A result confirmed in similar studies from other specialities. For example, APNs in neonatal practice were established in the UK context many years ago, (Smith and Hall, 2011). Studies have indicated APNs in this field achieve corresponding competence in diagnostic acumen and management abilities to medics, (Aubrey and Yoxall, 2001; Hall and Wilkinson, 2005; Lee, Skelton and Skene, 2001; Leslie and Stephenson, 2003; Woods, 2006).

However, frequent attempts to compare nurses versus medics as appose to scrutinising the unique contribution nurses make has fuelled concerns roles may be viewed as a substitution, (Nelson, Martindale and McBride, et. al., 2018; Rolfe, 2014; Rushforth, 2015). Contemporary evidence is shifting from this approach, establishing the value add of roles such as promoting health literacy, leading practice initiatives and supporting staff development, (Donald, et. al., 2013; Gerrish, McDonell & Kennedy, 2013; Kennedy, Brooks & Nicol, et. al., 2015; Morilla-Herrera, Garcia-Mayor & Martin-Santos, et. al., 2016; Tsiachristas, Wallenburg & Bond, et. al., 2015). Two of the included studies offered a glimpse of this potential. Borgmeyer, et. al., (2008), explained that in their study the APN role was responsible for delivery of clinical education. The APN provided appropriate discharge education improving physician knowledge whilst empowering staff nurses and families in the care of the child with asthma. Similarly, Kinder, (2016) reported over half of the parents surveyed reported APNs were the best health educator.

Commonly, organisational outcomes reported were length of stay and direct care costs. Results were variable with some indicating medical led care resulted in prolonged stays, (Fanta, et. al., 2006; Wall et al, 2014), or made no difference, (Borgmeyer, et. al., 2008). Conversely, one study indicated the opposite, with nurse led care reported to prolong the LoS, (Martin 1999). Similarly, three studies compared the cost of care between nurses and medics, with two reporting no difference, (Borgmeyer, et al., 2008; Fanta, et al., 2006). Yet, Wall, et. al., (2014) did note a cost differences between the teams reviewed. It is possible to assume there are many influences with regards to these outcomes; i.e. skill mix or acuity of patients.

Interestingly, studies in adult trauma and critical care have concluded that acuity of illness does not greatly influence nurse or medical led care, with comparability in terms of LoS, (Hiza, Gottschalk and Umpierrez, et al., 2015; Landsperger, Semler and Byrne, et al., 2015). The skill mix of the nursing workforce is notably linked to outcomes of patient morbidity and mortality however the case of economic impact is less clear, (Griffiths, Ball & Drennan, et. al., 2016) with limited evidence addressing outcomes associated with interdisciplinary led care.

Caution related to the cost-effectiveness of new roles should be acknowledged. It is evident significant investment is required both financially and professionally, potentially placing a burden on health expenditure, (Nelson, Martindale & McBride, et. al., 2018; Tsiachristas, et. al., 2015). However, wider socioeconomic benefits of investing in a workforce to improve access, improve patient self-management of conditions whilst division of workload responsibilities may outweigh this challenge, (Caird, Rees & Kavanagh, et. al., 2010; Nelson, Martindale & McBride, et. al., 2018).

In an earlier stakeholder piece, Barnes, Longfield & Jones, et. al., (2013) outlined how new arrangements in commissioning of NHS services facilitated innovation and positive outcomes. The authors report on two practice initiatives; one, a UK city walk in centre for CYP ran by APNs. The second, a GP based APN service for children and young people. Both initiatives were described to have improved access to specialist paediatric services, secured care closer to home and offered greater opportunities to enhance health literacy.

Professionally, APNs in the included studies performed well in achieving satisfaction from patients, families and staff alike. The majority of the studies reported patients and/or families considered that APNs provided good levels of care, clear explanations, empowered decision making and increased their knowledge related to their child's condition, (Borgmeyer, et. al., 2008; Evangelista, et. al., 2012; Fanta, et. al., 2006; Kinder, 2016; Martin, 1999; Retjar, et. al., 2017; Schuttelaar, et. al., 2010). Moreover, two studies, reported much higher levels of satisfaction when compared to physicians, (Fanta, et. al., 2006; Schuttelaar, et. al., 2010) with one facilitating longer consultation times for APNs, (Schuttelaar, et. al., 2010). However, it is difficult to associate this as an influence in improving satisfaction alone.

In a UK based study of 13 primary care settings, 440 video recorded doctor patient consultations were reviewed to examine the relationship between consultation length, patient-reported communication, trust and confidence (Elmore, Burt, & Abel, et. al., 2016). The authors concluded there was no correlation between patient-experience and consultation length. Approaches to relationship building and the delivery of information may be linked. In a systematic review of the utilisation of APNs within a critical and emergency care setting, Woo, Lee & Tam, et al., (2017) indicate satisfaction was not inherently influenced by the who but the how i.e. the way information was delivered with nurses frequently providing additional education, listening and answering questions in a way that epitomises the holistic care focused on the person rather than the disease. A third of the review studies reported positively on staff satisfaction with APNs supporting junior medical staff, providing continuity and timely access to care. Yet, one study contradicted this finding in their data indicating over half the staff reported in appropriate care was provided and continuity was not achieved by the APNs, (Martin, 1999). This was not explored further by the author.

None of the studies documented challenges of implementation or explained incidences when the APN role may not have worked. Evidence from the wider literature suggests successful use of APNs is influenced by a cacophony of issues including acceptance from other clinicians, staff and managers as well as policy, (Steinke, Rogers & Lehwaldt, et. al., 2017). In this study, the authors concluded that APN job satisfaction was driven by scope of practice with the ability to respond and importance of the ability to participate in healthcare initiatives for the community, (Steinke, Rogers & Lehwaldt, et. al., 2017). Similarly, barriers were described to be the lack of acceptance by other practitioners including restrictions to practice, (Steinke, Rogers & Lehwaldt, et. al., 2017). We were not able to ascertain the presence of any of these factors within the studies reviewed.

Limitations

All of the included studies had methodological flaws with the overall quality of evidence graded as either weak or moderate overall. The single centre study designs with small sample sizes and variability in reporting outcomes make generalisability of the results difficult. Moreover, the inconsistent nature of statistical reporting of data leads to a high risk for potential bias. The review focused solely on literature published in English language as well as primary research therefore possible publications may have been missed as a result. It was evident a number of practice discussion pieces could have contributed to developing an understanding of impact, yet, it is important to note, this work can be inherently subjective.

Conclusion

The review contributes to and compliments the existing literature examining APN roles adding a CYP perspective. Similarly, the results indicate APNs are employed in a variety of CYP settings and their inclusion makes a positive impact upon service and service users. However, there is limited primary research which explains causation of why APN roles are successful or not, taking account of the context in which they were developed. It is recommended future research should consider contextual issues such as organisational structures, role preparation and accepted autonomy, examining the influence this may have on implementation of models and outcomes. A theory driven or evaluation methodology allowing for a mixed method and/or qualitative research design may help identify the factors which enable or impede role utilisation in the CYPs health setting. It is envisaged this would inform future workforce policy for service design and may be applied to APN role development in general.

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