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A systematic review of the use of positive deviance approaches in primary care

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Abstract

Background: The Positive Deviance (PD) approach focuses on identifying and learning from those who demonstrate exceptional performance despite facing similar resource constraints to others. Recently, it has been embraced to improve the quality of patient care in a variety of healthcare domains. PD may offer one means of enacting effective quality improvement in primary care.

Objective(s): This review aimed to synthesize the extant research on applications of the PD approach in primary care.

Methods: Seven electronic databases were searched; MEDLINE, CINAHL, Embase, PsycINFO, Academic Search Complete, Psychology and Behavioral Sciences Collection, and Web of Science. Studies reporting original data on applications of the PD approach, as described by the PD framework, in primary care were included, and data extracted. Thematic analysis was used to classify positively deviant factors and to develop a conceptual framework. Methodological quality was appraised using the Quality Assessment with Diverse Studies (QuADS).

Results: In total, 27 studies were included in the review. Studies most frequently addressed Stages 1 and 2 of the PD framework, and targeted 5 core features of primary care; effectiveness, chronic disease management, preventative care, prescribing behaviour, and health promotion. In total, 268 factors characteristic of exceptional care were identified and synthesized into a framework of 37 themes across 7 system levels.

Conclusion: Several useful factors associated with exceptional care were described in the literature. The proposed framework has implications for understanding and disseminating best care practice in primary care. Further refinement of the framework is required before its widespread recommendation.

Lay summary

The positive deviance approach is focused on identifying people/organizations performing particularly well, in spite of having similar challenges and resources to others, and learning about how they work so well. Recently, this approach has been used in healthcare to learn about how to improve the quality and safety of care for patients. This review aims to explore how the positive deviance approach has been used in primary care settings and to summarize the findings from this research. Overall, 27 studies were included in the review. We found that studies typically focused on identifying positive deviants (i.e. those performing particularly well) and finding out what helps them do that, without looking to see if these same practices work elsewhere or teaching others about them. The positive deviance approach was used to improve several different parts of primary care including; care effectiveness, management of chronic diseases, preventative care, prescribing, and health promotion. Several success strategies were identified from the studies' findings and were organized into a framework describing what practices contribute to particularly good performance in primary care. This framework will be useful for those looking to improve quality of care in primary care.

Key words: family practice, general practice, patient safety, primary health care, quality improvement, quality of health care

Background

Optimizing quality of care is a central goal of every healthcare service.[1] Traditional approaches to quality improvement are "deficit-based," focused on identifying and learning from past harm.[2] However, despite extensive efforts, patient safety initiatives under this approach (sometimes called Safety-I) have yielded little measurable improvement.[3,4] In recent years, an alternative approach has been advocated which acknowledges that patient care "goes right" far more often than it "goes wrong" (sometimes called Safety-II).[2]

The Positive Deviance (PD) approach embodies the perspective of Safety-II,[5] by identifying and learning from healthcare workers, teams, organizations, or systems that demonstrate

exceptional care despite facing similar resource constraints to others.[6,7] Within healthcare, a 4-stage positive deviance framework[8] has been described: identifying positive deviants using routinely collected data (Stage 1); studying the positive deviants using in-depth qualitative methods to generate hypotheses about how they succeed (Stage 2); testing these hypotheses in larger, more representative samples (Stage 3); and finally disseminating these practices to others (Stage 4). While originating in international public health projects,[9] PD has also been embraced as an approach to improving healthcare quality and safety.[8,10,11] The primary assertion of PD is that solutions to enduring problems exist within the community, and that members possess tacit wisdom that can be generalized to improve the performance of others.[7,12] This bottom-up

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Key messages

- The positive deviance approach is gaining substantial traction in primary care.
- Most studies identified positive deviants and studied how they succeed.
- Positive deviance has been applied to target several key primary care features.
- Several positively deviant factors have been described in the literature.
- Future research to refine the proposed framework is required.

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approach means that staff and patient involvement is central and thus, solutions are internally motivated as opposed to externally imposed.[13] Such strategies are, arguably, more readily accepted by the community and feasible within existing resources, thus increasing the likelihood that they may be adopted elsewhere.[7,14]

Although a synthesis of PD research in healthcare has been completed,[11] this review encompassed all healthcare settings and focused primarily on characterizing the methods and quality of PD applications. Due to the distinct paradigm of care in the primary setting,[15] a review of the PD literature within this specific domain of healthcare is warranted. Thus, the current systematic review aimed to synthesize the extant research on applications of the PD approach in primary care. Specifically, our aims were to: (i) explore how the 4 stages of Bradley et al.'s[8] PD framework have been considered in primary care; (ii) identify problems or targets that have been addressed using PD; and (iii) synthesize factors associated with exceptional care in primary care and the system levels at which they operate. The review will provide a preliminary framework of factors associated with exceptional care in primary care that will inform how we conceptualize, measure, and disseminate exceptionally good care practices in primary care.

Methods

This review is reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 statement.[16] Consistent with best practice,[17] a protocol was published on PROSPERO (ref. CRD42020222938) in December 2020.

Search strategy

Searches were conducted across 7 electronic databases in October 2020 and updated in April 2021: MEDLINE (OVID); CINAHL (EBSCO); Embase (Elsevier); PsycINFO (OVID); Academic Search Complete (EBSCO); Psychology and Behavioral Sciences Collection (EBSCO); and Web of Science (Clarivate). The search strategy (see Supplementary Data 1 for Medline strategy) comprised the search term "Positive* devian*" combined with Medical Subject Headings search terms and other keywords related to primary care (e.g. "general practice"). The search strategy was altered as required for each database. In line with recommendations for methodological quality,[18] a Research Librarian assisted with developing the search strategy. Searches were restricted to English, with no limits placed on the publication year.

A number of additional search tactics were also employed. First, the reference lists of all studies identified for inclusion and those of 2 existing PD review articles[11,19] were screened. Second, citation tracking was conducted using

Google scholar,[20] by forward searching articles that cited the included studies. Finally, grey literature searches were conducted across Google (first 100 returns; location-USA), Google Scholar (first 100 returns; location-USA), Ethos, and OpenGrey. Across each database, the keyword "positive deviance" was entered with one of the following terms: primary care; primary health; general practice; family practice; ambulatory care; community health; and medical home.

Study selection

Inclusion criteria required that studies: (i) be conducted within a general practice setting (defined as the "specialties of family practice, general practice, general internal medicine, and general paediatrics and, for women patients, obstetricians, and gynaecologists."[21] p.545) or a mixed setting (i.e. where primary care-specific data can be extracted); (ii) explicitly state that a PD approach was employed; (iii) relate to one or more stages of Bradley et al.'s[8] PD framework; (iv) be published in English; and (v) report original research.

Studies were excluded if they: (i) were conducted in a setting other than primary care or in a mixed setting where primary care-specific data could not be extracted; (ii) were conducted in organizations that provide specialized care, not "first port of call" generalist care; (iii) focused on changing patient behaviour rather than provider behaviour or service delivery; (iv) used a similar approach to "positive deviance" (e.g. investigating top and bottom performers) but did not specifically use a PD approach; (v) did not relate to one of the 4 stages of the PD framework; (vi) sampled specific districts/geographical areas, rather than organizations/people/teams; (vii) were not available in English; and/or (viii) were only available as an abstract.

Titles and abstracts of all articles identified during the electronic searches were screened by the first author (ROM). The full texts of articles that the author judged to meet the inclusion criteria were obtained for review to confirm their suitability. Three reviewers (ROM, SL, and POC) assessed the full texts of all potentially eligible articles as a team and reached a decision regarding eligibility through discussion and ultimately by consensus. Decisions were made with strict reference to the inclusion criteria.

Data extraction and analysis

A structured tool was designed, piloted and refined to extract data on the: (i) general characteristics of studies (study approach, setting, location, behaviour/problem addressed, aims and objectives); and (ii) methods used to address Stage 1, Stage 2, Stage 3, and Stage 4 of the PD framework[8] (see Table 1 for detail on data extraction). Data were extracted by the 4 authors in pairs, and disagreements were resolved by discussion.

Table 1. Summary of data extraction procedures in relation to the studies aims

Variable	Procedure for data extraction
Stages of the positive deviance framework addressed	Data were extracted for each stage of the positive deviance framework[8] that the study addressed. These levels were conceptualized as:
	Stage 1: identify "positive deviants," i.e. organizations, teams or people that demonstrate exceptionally high performance in an area of interest. For this stage, the following information was extracted: sample, method/data used, timing for identifying positive deviants, subsample of positive deviants.
	Stage 2: study positive deviants in-depth using qualitative methods to generate hypotheses about practices that allow them to achieve top performance. For this stage, the following information was extracted: sample, method/procedure used, factors assessed, factors identified, comparison group, unit of analysis.
	Stage 3: test hypotheses statistically in larger, representative samples. For this stage, the following information was extracted: sample, methods/procedure used, data/measures used, analysis, unit of analysis, outcomes.
	Stage 4: work in partnership with key stakeholders to disseminate the evidence about newly characterized best practices. For this stage, the following information was extracted: sample, methods/procedure used, data/measures used, analysis, unit of analysis, outcomes.
Targets of positive deviance applications	Data were extracted on the studies' targets (i.e. behaviour/problem addressed) and coded according to key features of quality in primary care identified by an extensive systematic review,[22] as:
	Effectiveness: the ability of an intervention to have a meaningful effect on patients in normal clinical conditions.
	Chronic disease management: an integrated care approach to managing illness which includes screenings, check-ups, monitoring and coordinating treatment, and patient education.
	Preventative care: health care that aims to prevent disease, injury, or illness, rather than treat a condition that has already become acute.
	Prescribing behaviour: the decision-making and actions of medical practitioners in relation to the prescription of pharmaceutical therapies to patients.
	Health promotion: the process of enabling people to increase control over their health and its determinants, and thereby improve their health.
	Diagnosis and treatment: the process of identifying a disease, condition, or injury from its signs and symptoms, and the resulting treatment performed.
	Maternal and child health care: the focus on health issues concerning women, children and families, such as access to prenatal and well-child care, infant and maternal mortality prevention, and newborn screening.
	Mental health care: the provision of mental health services for patients diagnosed with mental disorders, and the strategies put in place to prevent mental disorders and ensure primary healthcare workers have key psychosocial and behavioural science skills.
	Patient safety: the prevention of diagnostic errors, medical errors or other preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with health care.
Practices associated with exceptional care	Data were extracted on practices associated with exceptional care (i.e. the variable "factors identified" from Stage 2 and potentially, "outcomes" from Stage 3) and categorized according to 7 system levels developed from CMS theory[24]. These levels were conceptualized as:
	Patient: The individual receiving care in a primary care setting.
	Individual provider: The individual directly providing or managing patient care in a primary care setting.
	Clinical microsystem: A small group of professionals who work together on a regular basis, or as needed, to provide care to discrete populations of patients.
	Mesosystem: The primary care practice, and how it is managed and supports the microsystem.
	Macrosystem: The system-level organization of primary care services within the community.
	Network, district, regional: The integration of secondary care, primary care and continuing care services.
	National: Policies, guidelines, or training provided by the health system at a national level as well as organizations external to the general practitioner, practice and network.

Study setting.

Data on the study's setting was coded as either "Multi-site" or "Single-site."

Study approach.

Data on the study's approach for each stage were coded as "Quant," "Qual," "Mixed-methods," or "Multi-method."

Stages of the positive deviance framework

Data on the methods used to apply each stage were synthesized and tabulated.

Targets and behaviours

Data on the targets of included studies (i.e. "behaviour/problem addressed") were coded according to the 9 essential features of quality in primary care (Table 1).[22]

Factors associated with positively deviant care

 Factors characteristic of exceptional care were collated using a thematic approach; a process of identifying, reporting, and analysing patterns or themes within a dataset.[23] As presented in Table 1, data were extracted on factors associated with exceptional care (i.e. "factors identified" from Stage 2 and "outcomes" from Stage 3). Each individual factor identified within studies (e.g. presence of a quality champion) was treated as an individual code within a Microsoft Excel© spreadsheet.

The codes were then analysed in a 2-step process. In the first stage, 3 reviewers (ROM, SL, and POC) organized the codes within Microsoft Excel© deductively according to 7-level systems developed by the reviewers based on Clinical MicroSystems (CMS) theory[24] (as described in Table 1). Grounded by complexity science and systems theory,[24] the CMS approach to quality improvement appreciates the complexity of healthcare systems and supports organizational learning.[24,25] Policy predominantly addresses the organization and individual provider, thus neglecting the role of the clinical microsystem, or healthcare team.[26,27] However, a multi-level approach is necessary to achieve desired success.[28] CMS thinking facilitates this learning, and can aid in the development and implementation of primary health programs.[29] In the second stage, once the levels had been determined, the reviewers inductively categorized the codes into themes within each level in Microsoft Excel©. The reviewers met again to ensure the themes were a good fit for the data and to finalize theme names. The resulting framework was presented in a table and a figure. Results were described through words and text using a qualitative narrative synthesis[30] as it is suited to understanding complex phenomena in healthcare.[31]

Quality assessment

The methodological rigor of included studies was critically appraised in pairs using the Quality Assessment with Diverse Studies (QuADS).[32] The QuADS, is an updated version of the Quality Assessment Tool for Studies with Diverse Designs (QATSDD) tool.[33] This tool was selected as it is suited to health services research[32] and the mixed methods characteristic of the PD approach.[11] The tool has demonstrated good reliability and validity, and adequate interrater reliability.[32,34] A score of 0–3 is awarded for each of 13 criteria, which are then summed and converted to a percentage score achieved. Disagreements were resolved through discussion.

Results

Study characteristics

As shown in Fig. 1, a total of 678 records were identified from screening the databases, with a further 6 papers identified from additional searching. In total, 27 papers,[35–61] published between 2008 and 2021, were deemed eligible for inclusion. Almost all studies (92.6%) were peer-reviewed with the exception of 2 studies[37,41] which comprised student theses. Study characteristics are given in Table 2 (for more detail, see Supplementary Data 2). In total, 268 codes, or factors, were identified across 21 papers that provided useable data on PD factors.

Studies were primarily conducted in North America (81.5%), followed by Europe (7.4%), Africa (7.4%), and Asia (3.7%).

Methodological rigor

The mean QuADS score was 53.85% (range = 36–79%). Studies generally performed well on items relating to the description of the research setting, description of the data collection procedure, and statement of the study's aim(s). Studies performed poorly on items relating to the involvement of stakeholders, justification for the method of analysis, and rationale for choice of data collection tool(s). It was not possible to distinguish between the quality of non-peer-reviewed and peer-reviewed studies (with studies scoring an average of 66.5% and 52.8% on the QuADS, respectively).

Stages of the positive deviance framework

As presented in Table 2, Stages 1 and 2 of the PD framework[8] were most frequently applied to the included studies (see Supplementary Data 2 for more information). Studies focused on identifying positive deviants most commonly used routine data (68%), such as vaccination rates,[55] weight loss,[36] and patient experience.[44] Non-routine data (32%) used to identify positive deviants included, for example, data collected during meetings with stakeholders[59] and quality initiatives.[50] Stage 2, which involves studying positive deviants to determine how they succeed, was most commonly addressed using interviews (95.2%), followed by surveys (23.8%), site visits/observations (23.8%), and focus groups (9.5%). Only 2 studies[43,46] addressed Stage 3, which involves testing these hypotheses in larger samples. Both studies developed a tool based on PD factors;[44,45] however, one study focused on psychometrically validating the tool,[46] while the other statistically tested these factors to identify those associated with higher quality of care.[43] One study addressed Stage 4,[38] the dissemination of PD practices to others, by disseminating newly characterized best strategies for blood pressure control through an intervention.

Targets addressed using positive deviance

As presented in Table 2, the *effectiveness* of primary care was the most frequently targeted feature of primary care quality,[22] including aspects of care effectiveness such as patient engagement,[49] care coordination,[61] and access.[40] Further, *chronic disease management* (e.g. blood pressure control[38]) was a common target, followed by *preventative care* (e.g. vaccination uptake[56]), *prescribing behaviour* (e.g. opioid prescribing[41]), and *health promotion* (e.g. weight counselling[52]).

Factors associated with exceptional care

As shown in Fig. 2, 37 themes were identified related to 268 factors associated with exceptional care in primary care. These themes were distributed across the 7 system levels, derived from CMS theory[27] (for information on how these levels were defined, see Table 1). The majority of factors related to the *Mesosystem* (50%), followed by the *Provider* (22.8%), *Microsystem* (15.7%), *Macrosystem* (3.7%), *National* (3.7%), *Patient* (2.6%), and *Network* level (1.5%). The factors associated with each theme are discussed below.

Patient level

The patient's *motivation and expectations* (9.5%) facilitated exceptional care (for exemplar strategies, see Supplementary Data 3), including, for example, self-motivation to change their behaviour[36] and motivation due to their need for a service.[50] Further, having good *self-efficacy* (4.8%) and taking
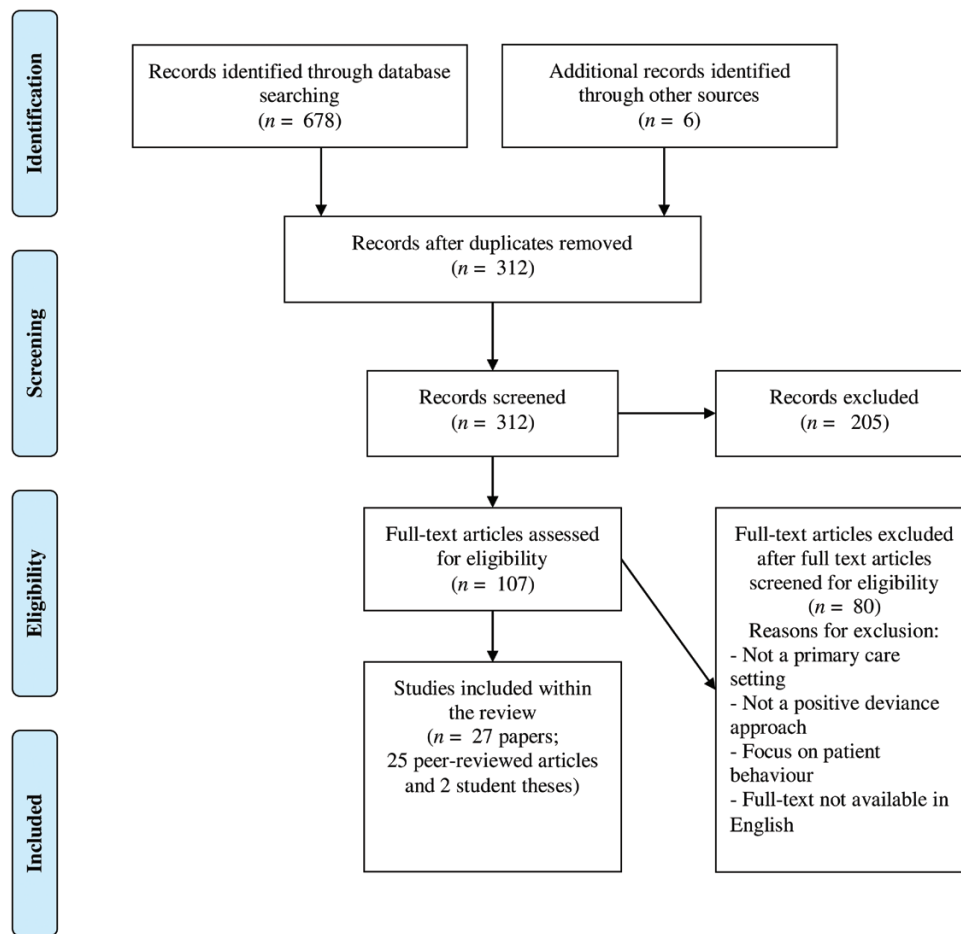
Fig. 1. Flow chart of the study selection.

time to *build rapport with the provider* (4.8%) was associated with exceptional care, as well as *attending regular physicals* (4.8%) and effectively *managing their insurance* (4.8%).

Provider level

Exceptional patient care was delivered by providers who *activated and educated patients* (28.6%), employing strategies such as setting goals[49] and scheduling follow-ups to cheer successes and problem solve.[45] Effective *coordination of care* (28.6%) was also associated with exceptional care, for example, providers developed care plans[53] and followed up with patients after visits.[58] Further, *communication and rapport building* with patients (23.8%) was associated with positively deviant care, facilitated by showing care and concern[45] and listening to patients.[43] The *beliefs and attitudes* (19%) and *motivation* (19%) of providers in primary care were also associated with exceptional care, as well as how they managed their *capacity and workload* (14.3%) and *continued their professional development* (9.5%).

Clinical microsystem level

Team rapport (42.9%) was frequently associated with exceptional care in primary care, facilitated by teams who engaged in collective problem solving and open communication[42] and socialized outside of work.[37] Further, exceptional care was typically delivered by teams with good *team efficacy* (19%),

who demonstrated a teamwork orientation[42] and a flat hierarchy.[37] These teams also engaged in regular *team collaboration* (19%) by partaking in huddles[61] and regular meetings.[42] Teams that provided exceptionally good care upheld a culture that was *patient-focused* (19%), and oriented towards *learning* (19%), and were typically multidisciplinary in *structure* (9.5%).

Mesosystem level

Exceptional care was provided by organizations focused on *innovation and improvement* (57.1%), that, for example, designated a quality champion[43] and gathered data to "benchmark" the practice's performance.[37] In addition, supportive *IT systems* (57.1%) were integral to the provision of exceptional care, including electronic care management forms[58] and reminders for well-care visits.[55] *Leadership* at the practice was also associated with exceptional care (52.4%), for example, leadership enabled exceptional care by setting expectations and standards[37] and providing visible support and role modelling.[55] In addition, practices that provided exceptional care were *managed like a business* (38.1%) and had greater *resources* and resource management (33.3%). These practices also provided efficiently allocated *appointments and access to care* (28.6%), supported *staff development* (28.6%), provided *patient education* (23.8%), and *focused on vulnerable populations* (23.8%). Further, exceptional care was enabled

Table 2. Characteristics of included studies (dated 2008–2021)

Characteristics	No. of studies (%)
Country	
United States of America	22 (81.5)
United Kingdom	2 (7.4)
Uganda	1 (3.7)
Ethiopia	1 (3.7)
Indonesia	1 (3.7)
Study approach	
Quantitative	3 (11.1)
Qualitative	2 (7.4)
Mixed-method	3 (11.1)
Multi-method	19 (70.4)
Target	
Effectiveness	11 (40.7)
Chronic disease management	6 (22.2)
Preventative care	4 (14.8)
Prescribing behaviour	3 (11.1)
Health promotion	3 (11.1)
Stages of the positive deviance framework addressed[8,a]	
Stage 1	25 (92.6)
Stage 2	21 (77.8)
Stage 3	2 (7.4)
Stage 4	1 (3.7)
Methods of data collection for Stage 1- identifying positive deviants[b]	
Routine data	17 (68)
Non-routine data	8 (32)
Methods of data collection for Stage 2- identifying positively deviant practices[a,c]	
Interviews	20 (95.2)
Survey	5 (23.8)
Observations/site visits	5 (23.8)
Focus groups	2 (9.5)
Use of multiple data collection tools	10 (47.6)
Use of comparison group[c]	
Comparison group	11 (52.4)
No comparison group	10 (47.6)

[a]These percentages do not total to 100% because some of the studies fell into multiple categories.
[b]These figures are derived from the 25 studies that addressed Stage 1 of the positive deviance framework.[8]
[c]These figures are derived from the 21 studies that applied Stage 2 of the positive deviance framework.[8]

by providing staff with *protocols* (19%) to support care delivery and clear *roles and responsibilities* (14.3%).

Macrosystem level

The *accessibility of speciality primary care services* (19%) was frequently associated with exceptional care, enabled by, for example, offering co-located speciality services (e.g. pharmacy, physiotherapy)[43] and scheduling follow-ups with specialty services.[49] *Engaging with the community* (9.5%) and ensuring *continuity of care* (9.5%) for patients was also associated with exceptional care.

Network, district, regional level

Integration of primary care in the healthcare system (14.3%) enabled exceptional care, supported by having good relationships with local government health offices[40] and the extended care environment.[53] Further, having good *healthcare management at a regional level* (4.8%) was important.

National level

At a national level, *funding and reimbursement* (19%) facilitated exceptional care, including, incentives for providers[55] and external funding.[61] Additionally, *support and guidance* from the health system (9.5%), the ability to be *financially autonomous* (9.5%), and *access to care* (4.8%), including specialist primary care, was integral to the delivery of exceptional primary care at a national level.

Discussion

This systematic review synthesized extant research on applications of a PD approach in primary care. It can be seen from the range of included studies that PD is gaining considerable traction in primary care to improve the quality of patient care delivery. The main findings within the current review were that PD applications predominantly considered Stages 1 and 2 of the PD framework[8] to address 5 key features of quality in primary care. Further, numerous factors characteristic of exceptional care in primary care were identified and synthesized into a conceptual framework.

The majority of studies focused on identifying positive deviants (Stage 1) and finding out how they succeed (Stage 2). This finding resonates with previous reviews of PD literature in healthcare[11,19] which also found that these 2 stages of the PD framework[8] were most commonly considered. One reason for this may be that the required methods (e.g. interviews) are not as resource intensive as those required for the latter 2 stages (e.g. questionnaire development, interventions). Further, some factors identified in Stage 2 inquiries, such as those related to abstract behaviours (e.g. *Team rapport*), may be challenging to distil into valid, quantitative measures.[8,37] Focusing on these initial stages is problematic, as evidence derived solely from qualitative studies may not have as much credibility to potential adopters, whose buy-in is central to successful implementation.[8] In contrast, very few studies considered Stages 3 and 4 of the PD framework,[8] potentially due to resource constraints.[11] The lesser consideration of these stages is perhaps unsurprising given the well-established gap between evidence generation and its implementation into practice.[62] As noted, it is possible that resource constraints explain this. Creating appropriate survey items and developing a psychometrically sound questionnaire can be extremely resource intensive.[37] Additionally, intervention implementation efforts, including those using a PD approach, often require increased staff time and resources.[38] However, projects need to move beyond these initial stages, as identifying factors without statistically testing their effectiveness in larger samples means that it cannot be determined which factors are actually effective and intrinsic to PD.[19] Further, Stage 3 and 4 investigations are necessary to assess and compare the effectiveness of PD as a quality improvement strategy.[11] Thus, for PD to become a useful approach for supporting quality improvement in healthcare, researchers need to identify methods

Fig. 2. Framework of positively deviant factors in primary care identified across 21 studies that applied the positive deviance approach in primary care settings.

that are feasible and accessible for clinicians and staff to implement and sustain the approach.[37]

Five out of the 9 features of quality in primary care identified by Kringos et al.[22] were addressed using a PD approach including chronic disease management, prescribing behaviour, health promotion, preventative care, and effective care. Targets of PD in primary care were distinct from those in secondary care, which typically focused on healthcare-associated infections, hand hygiene compliance, and mortality risk.[11] The successful application of the PD approach to target these core processes is promising, particularly as the need for each of these 5 features of primary care increases in patient populations.[63–68] Future research should apply the PD approach across the 4 remaining quality features[22] (i.e. diagnosis and treatment, mental health care, maternal and child health care, practice safety), as PD has recently been proposed as a strategy to improve obstetric care[69] and patient safety,[6] and has yet to be considered in mental healthcare and diagnosis and treatment. In addition, future applications should consider the effectiveness of PD as an approach to improving related care outcomes. A recent review of PD applications in infection prevention[70] supported the effectiveness of this approach. Thus, the development of problem-specific frameworks[71] using the proposed framework would be valuable, to identify which factors should be targeted to yield the greatest clinical improvements for patients.

The most frequently identified themes associated with exceptional primary care were: Innovation and improvement; IT systems; Leadership; Team rapport; and Business management. These themes are consistent with those associated

with exceptional secondary care. For example, a PD application in elderly medical wards[72] found that team rapport, leadership support, a focus on learning, and integrated teams facilitated positively deviant performance. The themes associated with exceptional care also resonate with broader research exploring high performance within primary care which has implicated leadership,[73–75] patient-centeredness,[73–76] IT systems,[73–75] multi-professional teams,[75,77] culture,[74,78] education and training,[74,77] and incentives[73] as crucial factors. Importantly, the framework also encompasses the 9 characteristics of a successful clinical microsystem.[27] We cautiously consider these factors to be indicative of exceptional care. It was often unclear whether factors were unique to positive deviants[11] and factors were seldom statistically tested in larger samples.[19] The generalizability of these strategies also raises concerns. Primary care is in its very nature heterogeneous,[79] and the factors identified by this review, particularly those in higher system levels (i.e. Macro, Network, National) may vary in relevance across different health systems and settings.[62] For example, *relationships with insurance companies* may be of greater importance in the United States of America where in 2018, 91.5% of patients had health insurance coverage[80] compared to 43.5% in Ireland.[81] Researchers and policy makers should use the proposed framework as a basis for understanding and disseminating exceptional care in their healthcare setting, and should base the choice of strategies on the context in which it is being implemented.[62,82] These strategies should then be adapted to local circumstances in which staff engage and thus, learn.[8,83]

Limitations

There are a number of limitations to the current review. First, relevant articles may have been missed due to the inconsistent terminology used by authors to describe positive deviants.[19] It is possible that some articles that may have used a PD approach were not included in the review as it was not explicitly stated that a PD approach was applied. However, a rigorous search process was conducted to address this, as indicated by the comprehensive search strategy and the lack of publication year limits. Second, the inclusion criteria may be criticized. The focus on healthcare provider behaviour or service delivery led to the exclusion of studies addressing patient behaviour in primary care (e.g. patient weight loss[84]). Further, studies that did not explicitly use a PD approach were excluded. This decision was made due to the distinct, and established, theoretical underpinnings and methods of PD. As a result, the exclusion of studies that applied topographically similar approaches (e.g. Learning from Excellence[5]) but which did not emerge from the PD literature or methodology was deemed most appropriate. In addition, only studies published in English were included. However, there is evidence to suggest that limiting the language does not negatively impact a review[85] and the narrow inclusion criteria facilitated the synthesis of findings. Third, while the QuADS tool has shown preliminary evidence of reliability and validity,[32] there is limited information of its psychometric properties and evaluations are subjective. However, the QuADS was selected as it has been newly refined to address the limitations of the QATSDD[33] and is suited to the methods posited by the PD process.[11] Further, the QATSDD was used to assess study quality by previous reviews in PD.[11,19] Finally, the inclusion of grey literature can be contentious. Issues have been raised around the replicability of grey literature searches, as well as the interpretation or extraction of data due to the poor methodological quality and reporting of grey literature.[86,87] However, grey literature searching is recommended by prestigious evidence-synthesis organizations such as Cochrane[88] and the Campbell Collaboration.[89] Further, searching grey literature increases the likelihood of a comprehensive search[90] and it is often comparable to published research in terms of quality.[91] Two grey literature studies[37,41] were integrated within the current review to showcase the full extent of PD research in primary care. Of note, the quality scores achieved were similar between non-peer-reviewed (66.5%) and peer-reviewed studies (52.8%).

Future research and application to practice

The findings of this review highlight areas for future research and implications for practice. To improve the rigour of the PD approach, future applications should consider adhering to the methods posited by PD framework.[8] For example, objective and appropriate indicators[92] of performance should be used, to improve the interpretation and replicability of the process,[19] and comparison groups should be employed to ensure that hypotheses are unique to positive deviants.[11]

The conceptual framework derived from our systematic review will be useful in supporting the measurement of exceptional care and to develop evidence-based interventions to improve primary care quality. However, consistent with the PD 4-stage process,[8] future research should first refine this framework using in-depth qualitative methods, to determine the robustness of this model in representing exceptional care. Next, these factors will need to be statistically tested in larger samples,[8] which might involve the development and distribution of a questionnaire to primary care stakeholders to determine which factors are statistically important. This should be followed by the dissemination of successful factors to primary care stakeholders via co-creation workshops[93] or an intervention where the effectiveness of the approach is considered.[38]

Conclusions

As the impetus for high quality care increases, the application of concepts such as Safety-II and PD offer a promising approach to quality improvement that is suited to complex adaptive systems such as primary care. The framework developed herein offers a comprehensive and useful overview of what exceptional care in primary care looks like. This framework has clear and important implications for understanding, measuring and disseminating best care practice in primary care, and thus the quality of patient care delivery in primary care settings.

Supplementary material

Supplementary material is available at *Family Practice* online.

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Conflict of interest

None declared.

Data availability

The data underlying this article are available in the article and in its Supplementary Material.

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