Patient-Provider Communication During Orthodontic Consultations

by

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ABSTRACT

Informed consent, future patient compliance, and patient satisfaction greatly depend on successful patient-provider communication (PPC). Existing research, although limited, suggests that PPC in orthodontics, and dentistry in general, needs to be improved. Research has traditionally emphasized recall of information as an outcome measure, yet this may not reflect the depth and complexity of PPC, including the individual experiences of participants. This research aimed to identify and better understand factors which may be related to PPC in orthodontic consultations. To achieve this objective, two original studies were undertaken. Firstly, a scoping review was conducted to map the depth and breadth of available literature regarding PPC during consultations for elective dental procedures. Secondly, a qualitative study was undertaken to better understand parents' perspectives of PPC during orthodontic consultations in a university-based orthodontics graduate program. Both studies were informed by well-established methodologies. Thirty-seven articles were included in the scoping review. Nineteen factors related to PPC during elective dental consultations were identified, including patient-related, provider-related, and information delivery factors. Qualitative description guided the qualitative study, as this methodology is suited to providing a rich, straightforward account of individuals' perspectives. Adult participants were selected with purposeful sampling, having recently undergone an orthodontic consultation with their child at the University of Alberta Orthodontics Graduate Clinic in Edmonton, Alberta, Canada. Data were collected via semi-structured, individual telephone interviews and analyzed using Inductive, manifest thematic analysis. Identified themes suggested that PPC should be inclusive, truthful,

understandable, and holistic. Our findings are expected to inform interventions aiming to improve PPC during orthodontic consultations.

PREFACE

This thesis is an original work by Codey Pilgrim. Ethics approval was provided by the University of Alberta Research Ethics Board: “Parents’ perspectives of patient-provider communication during orthodontic consultations: a qualitative description study”, Pro00112134, August 8, 2021.

Chapter 2 of this thesis has been prepared for publication under the title “Patient-provider communication during consultations for elective dental procedures: A scoping review”. The overall scope of this chapter was to map the current literature regarding factors which may be related to PPC during consultations for elective dental procedures. We are actively seeking a suitable journal. I was the primary reviewer, chiefly responsible for study design, data collection, data analysis, and composition of the manuscript. Dr. Carlos Flores-Mir assisted with study design, data analysis, data interpretation, and critical revision of the manuscript. Dr. Arnaldo Perez-Garcia assisted with study design, data analysis, and critical revision of the manuscript. Dr. Paul Major assisted with data analysis, data interpretation, and critical revision of the manuscript. Dr. Raisa Catunda assisted with data collection as the second reviewer.

Chapter 3 of this thesis has been prepared for publication under the title “Parent perspectives of patient-provider communication in orthodontic consultations: a qualitative description study”. The overall scope of this chapter as to obtain a more comprehensive understanding of parents’ perspectives of PPD during orthodontic consultations. We are actively seeking a suitable journal. I was the primary author, responsible for study conception, participant recruitment and data collection, data analysis, data interpretation, and composition of the manuscript. Dr. Arnaldo Perez-Garcia assisted with study design, data analysis, data interpretation, and critical revision of the manuscript. Dr. Carlos Flores-Mir assisted with study design, data interpretation, and critical revision of the manuscript. Dr. Paul Major assisted with study design and critical revision of the manuscript.

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CHAPTER 1: INTRODUCTION

Background

Patient-provider communication (PPC), which broadly refers to the exchange of information between healthcare providers and patients, is directly associated with informed consent, future patient compliance, and satisfaction with the encounter (1, 2). Specific to orthodontic consultations, PPC should include information related to patients' health, dental condition, proposed treatments, risks and benefits, prognosis, and financial commitment (3). It may also include pleasantries, social talk, and counselling. According to the code of ethics of the Canadian Dental Association, patients have the right to choose their care provider and actively engage in the treatment decision process in a way that is responsive to their values, beliefs, and goals (4). Successful PPC during orthodontic consultations should bridge the information gap between care providers and their patients, ensuring that patients feel well-informed, engaged, respected, and satisfied with the consultation and treatment process (4).

Problem

Current research suggests that PPC in orthodontics, and dentistry in general, is not necessarily optimal (5-7). This is problematic because PPC is crucial to building a strong patient-provider relationship and has been demonstrated to be the method most preferred by patients for receiving orthodontic information (8, 9). Dental research shows that patients who have had a positive PPC experience report higher levels of satisfaction with their provider and are less likely to leave a dental practice to seek treatment elsewhere (10, 11). Additionally, perceived poor PPC has been associated with lawsuits against dentists (12). Similarly, medical research has demonstrated that effective PPC can lead to improved treatment outcomes, patient compliance, therapeutic relationships, and patient safety (13, 14).

Much of the published research regarding PPC in dentistry has focused on the effectiveness of PPC as measured by patient retention, or recall, of information. Specifically, it is most often directly related to informed consent. A 2016 systematic review revealed that dental patients seem to overestimate their recollection and understanding of information related to informed consent (6). It appears, then, that PPC in dentistry can be improved. Similarly, PPC

research in orthodontics has mainly focused on retention of information and the use of different communication modalities to improve that retention (2, 7, 15-21). Unfortunately, only one study has qualitatively explored the perspectives of parents of orthodontic patients, and this was within a specific clinic, evaluating a specific process, and chiefly focused on patient participants (22). They concluded that their current care pathway did not promote shared decision-making (SDM) and parents were unaware of their role in SDM. Currently, there is a need to better understand the depth and complexity of factors that may shape PPC within routine orthodontic consultations. Parents of orthodontic patients are excellent candidates to provide this insight. Research has shown that parents understand information given during consultations more readily than their children, and view themselves as an advocate for their child to make the right decision (2, 7, 15, 22). No study to date, however, has explored their perspectives in a comprehensive, naturalistic manner.

Inquiry

Initially, a scoping review was conducted to map the current literature regarding factors which may be related to PPC during consultations for elective dental procedures (23). Scoping reviews are advantageous for mapping existing literature as they are amenable to including different forms of evidence (24). Formal recognition of a research gap confirmed the need for a more comprehensive understanding of parents' perspectives of PPC. Qualitative description was chosen to guide the primary study design, as this method is suited to providing a comprehensive, straightforward summary of individuals' perspectives (25). In line with the study objective, inductive, manifest thematic analysis was chosen to develop themes and subthemes from the data in absence of a preconceived framework (26). The study was approached from a constructivist perspective, which presupposes that reality does not exist independent of human consciousness (relative ontology) and that meanings ascribed to reality are actively and socially constructed (subjective epistemology). General criteria to ensure rigour within the constructivist perspective includes credibility, transferability (applicability), and dependability (27, 28). Specific methods used to ensure methodological rigour in this study included choosing a method that is suited to answer the research questions, critical reflection,

describing participants and the clinical setting in detail, systematically checking themes and sub-themes against the data, achieving data saturation, and maintaining an audit trail (28, 29).

Research Goals

The objectives of this research were to 1) document the depth and complexity of factors which may be related to PPC during consultations for elective dental procedures, 2) further explore the perspectives of patients' parents regarding PPC during orthodontic consultations at the Orthodontics Graduate Clinic, University of Alberta, Edmonton, Alberta, Canada, and 3) make recommendations for future research regarding PPC to inform the development of high-quality, comprehensive guidelines.

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CHAPTER 2: PATIENT-PROVIDER COMMUNICATION DURING CONSULTATIONS FOR ELECTIVE DENTAL PROCEDURES: A SCOPING REVIEW

Abstract

Patient-provider communication (PPC) is a critical component of patient-centered care. Original studies have examined specific factors related to PPC during consultations for elective dental procedures, but this evidence has yet to be comprehensively summarized. This scoping review aimed to better understand the extent and depth of the available literature regarding factors that influence PPC during consultations for elective dental procedures. The authors considered electronically available, English-language, original research published since 1990 assessing communication during consultations for elective dental procedures. Four electronic databases, Google Scholar, and reference lists of inclusions and similar reviews were searched to December 2021. As this is a scoping review, no quality assessment was completed. Two independent researchers assess article eligibility. Thirty-seven studies were included. The most popular discipline studied was orthodontics. Prospective cohorts and cross-sectional were the most common study designs. Information recall, patient satisfaction, and perceived patient comprehension were the most common outcome measures. Most studies employed questionnaires, surveys, and interviews for data collection. Nineteen factors related to PPC during elective dental consultations were identified, including 'information delivery' (4), 'patient-related' (9), and 'provider-related' (6) factors. This review appears to be the first to present a list of evidence-supported factors which are related to PPC in elective dental consultations. Identifying these factors is an important first step to better understanding their influence on PPC and to design interventions targeting those which may be modifiable. PPC

during elective dental consultations is a dynamic, ongoing process shaped by various factors including information delivery, patient-related, and provider-related factors.

Introduction

Patient-provider communication (PPC) is a critical component of patient-centered care (30, 31). It broadly refers to the exchange of information between healthcare providers and patients. Key elements of PPC include task-focused dialogue and socio-emotional dialogue (32, 33). The former dialogue refers to task-focused information regarding the patients' health, dental condition, proposed treatment, risks and benefits, prognosis, and financial commitment. The socio-emotional dialogue includes pleasantries, empathy, and reassurance (32). Successful PPC should bridge the information gap between care providers and patients while ensuring that the patient feels well informed, engaged, respected, and satisfied with the treatment process (4). Taken together, this could be considered a holistic PPC experience.

Current guidelines related to PPC in dentistry primarily focus on informed consent, which is part of task-focused dialogue (32, 34, 35). In contrast, the socio-emotional dialogue appears to rely on the providers' judgement and training (32). Therefore, PPC in dentistry is only partially informed by existing guidelines.

Research has identified several PPC-related issues in general and elective dentistry, including poor information recall, poor patient comprehension, potentially inadequate informed consent, and neglect of socio-emotional dialogue (5-7, 36, 37). These issues are concerning because research has shown that patients who have had a positive PPC experience report higher satisfaction with their providers, improved oral health literacy, and are less likely to seek dental treatment elsewhere than those who report a negative PPC experience (10, 11). Conversely, perceived poor PPC has been associated with lawsuits against dentists, increased dental anxiety, and dental mistrust (10, 12). Considering orthodontics, for example, PPC may be the patients' preferred method for receiving treatment information and is strongly associated with treatment outcome satisfaction (8, 38).

Currently, there is a need for an improved understanding of the factors that shape PPC within consultations for elective dental procedures. Synthesizing the available literature on the topic can help identify these factors and their contributions to PPC. The objective of this

scoping review was to better understand the extent and depth of the available literature regarding factors that influence PPC during consultations for elective dental procedures.

Methods

The study was informed by the scoping review framework developed by Arksey and O'Malley (2005) and followed the PRISMA-ScR Extension guidelines for reporting scoping reviews (24, 39). This framework is well suited to describe the research activity on the topic of interest and identify existing gaps in the available literature. It includes the following steps: developing a research question, identifying the relevant studies, study selection, charting the data, and synthesizing the results.

Identifying Relevant Studies

The following electronic databases were searched using bespoke criteria up to December 9, 2021: Medline via OVID, Embase via OVID, PsycInfo via OVID, and Scopus. Google Scholar was also searched. Table 4 and Figure 1 show the search criteria. Duplicate articles were removed using Covidence, and the primary author screened titles and abstracts for relevancy. Articles selected for full-text review were blindly assessed for inclusion by the primary author and a second reviewer. The inclusion and exclusion criteria were adjusted during the process based on a better understanding of the existing literature. Disagreements were discussed until consensus was achieved. The reference lists of included articles, as well as similar review articles, were scanned to broaden the search. Selected references were also subjected to full-text review by both reviewers, and disagreements were solved by consensus.

Only electronically available English-language articles published since 1990 were included. Articles only available in print could not be retrieved due to local restrictions in response to the global COVID-19 pandemic. Corresponding authors were contacted when electronic copies were unavailable. Restricting the search to articles post-1990 was a practical decision due to time constraints.

Study Selection

Articles were considered eligible if they were original studies of any design, focused on PPC during consultations for elective dental procedures, and included participants over 12 years of age assessed before any intervention. Elective dental procedures included, but weren't limited to, orthodontics, non-emergent third molar removal, cosmetic dentistry, implant placement, additional therapy for dental anxiety, and esthetic prosthodontics. Non-elective and emergent procedures were not included as research suggests that factors influencing PPC may differ between elective and emergent interventions (40-42). Examples of disciplines not included were restorative dentistry, routine dental care, periodontics, and pediatric dentistry. Studies focusing on consultations for emergency or regular dental procedures, using participants under 12 years of age exclusively, conducted solely after treatment had already begun, or including developmentally atypical patients were also excluded.

Charting the Data

Data from each study were charted using a narrative review approach. This approach takes a broader view of the research reports, which can help contextualize outcomes and make them more understandable to the reader (24). Charting was completed by the primary author using Microsoft Excel for Mac V16.53. It included the study title, authors' names, publication year, study location, dental discipline, study aims, population, intervention or comparator, methodology, data collection method, outcome measures, and relevant findings. No attempt was made to appraise the included studies critically.

Synthesizing the Results

Charted data were analyzed with a descriptive-analytical method which involved applying a common framework to each study and collecting standard information (24). This method provides a ground-level view of study findings, accounts for data heterogeneity, and is less rigid than a meta-analytical process (43). Relevant findings were summarized, synthesized, and interpreted to identify potential factors related to PPC during elective dental consultations (Tables 1 and 3). Data were synthesized based on outcome measures, study location, dental discipline, methodology, and data collection strategy to produce frequency data (Table 2).

Results

The article search was completed on December 9, 2021, and hand searching was ongoing as inclusions were selected. In total, 3300 unique references were identified. After screening for relevancy based on titles and abstracts, 73 articles were selected for full-text review. Two independent reviewers agreed on the inclusion of 27 studies. The reference lists of those studies were scanned for potentially relevant articles, and a further 16 studies were selected for full-text review. After screening for relevancy, the same two independent reviewers agreed on including 10 additional articles resulting in 37 inclusions. (Figure 1, Table 1)

Demographic Data

Twenty-six studies were conducted in the United Kingdom or the United States (26/37, 70%). Orthodontics was the most popular dental discipline studied (17/37, 46%). Prospective cohort studies were the most popular research design (17/37, 46%), followed closely by cross-sectional studies (16/37, 43%). The most common outcomes measured were information recall (14/37, 38%), patient satisfaction (9/37, 24%) and perceived patient comprehension (9/37, 24%). Four studies were qualitative (4/37, 11%), and one used a mixed-methods design (1/37, 3%). Except in one study, questionnaires or surveys (29/37, 78%), along with interviews (11/37, 30%), were the main methods of data collection. Table 2 shows the demographic data.

Factors Related to PPC

Overall, nineteen factors were identified, including four 'information delivery' factors, nine 'patient-related' factors, and six 'provider-related' factors. (Table 3)

Information Delivery Factors

The information delivery factor most commonly reported was the method of providing information. Information provision methods included verbal, written, video, telephone, mind map, animated, web-based, and computerized formats as well as evidence-based decision-making aids (2, 15-21, 44-57). Research suggests that patients may respond differently to various forms of information delivery depending on the dental procedure, the format or combination of formats, and patient preference (2, 8, 15, 16, 18, 44, 45, 47, 49-51, 53, 56-59).

Adding written information to verbal information, for example, improved recall in an orthodontic study but not in an oral surgery study (2, 50). Written information may increase patient motivation and compliance with future treatment but did not demonstrate an effect on patients' expectations (52, 53). Showing a video recording of an upcoming surgical procedure increased patient anxiety in one study but another found that adding a procedural video did not affect anxiety and was preferred by patients (54, 56). One study reported that an evidence-based, written and visual patient decision-making aid did not affect a patients' decisional conflict (57). Directing patients to evidence-based online resources before a consultation did not appear to increase patient knowledge of their proposed treatment (59). Findings regarding combinations of information formats have been inconsistent. Customized slideshows, for example, made a verbal explanation redundant (15); however, adding a leaflet and mind map improved recall compared to a standardized audiovisual presentation alone (16). Using combinations of different information media appears to have the potential to improve patient recall and comprehension, but not necessarily patient satisfaction (18, 47, 50, 58). Studies that examined patient preference for information delivery methods reported that patients preferred humorous videos over standardized videos (18), information directly from the consultation instead of external resources (8), in-person consultation when it was convenient (45), information delivered in a way they had received it previously (56), and computer simulations of potential treatment (44, 49, 51). The use of computer simulations did not improve patient satisfaction with socio-emotional dialogue in one study (51).

Personalization, or customization, of information may also influence PPC. Several studies on customized versus generic information delivery used slideshows, mind maps, patient stories, and computer simulations (15, 16, 44, 55, 58, 60, 61). Verbal explanations were reported as less useful when customized slideshows were also presented (16). Patient stories were reported to be useful when they were relatable (58, 61). Personalized computer simulations seemed to improve understanding of proposed treatment, were preferred to non-personalized simulations (44), and appeared to not affect long-term expectations for treatment (55). Personalized computer simulations did appear to modulate short-term expectations. One study reported that for patients with psychological distress, a personalized simulation

diminished their expectations for problems (55). For patients without psychological distress, the expectation of problems was higher. No advantage was found to using a customized versus generic mind map in one study (15). More standardized information may benefit patients considering orthognathic surgery (60).

Several studies reported that recall decreases over time (15, 19, 21, 46, 50). The quantity of information delivered also appeared to influence recall. Up to seven information items presented first in a list were demonstrated to be better recalled (16). Similarly, "chunking" information segments into clear, related categories improved recall and comprehension (20). Too much information given at once may confuse the patient (58).

Patient-Related Factors

Patients' preconceived ideas may make communicating accurate information challenging (8, 62). Similarly, patients' values and perceptions of information reliability, seriousness, and importance, may influence how they respond to the information provided (7, 8, 46, 58). Serious or emphasized information seems to be remembered more readily than routine information (7, 46, 63). Some information delivery media may be perceived as reliable but not useful, and information delivered directly during a consultation appears to be highly valued by patients (8, 58). Patients' perception of their own understanding was also identified as a factor influencing PPC; three studies found that patients who reported understanding the information given could not successfully demonstrate it (16, 17, 64, 65).

Support systems available to patients, including their friends and family, appear to facilitate their understanding of information provided and aid in making a treatment decision (22, 44, 60). Two studies reported that a lack of external support systems might prevent patients from making informed decisions regarding treatment (22, 60). Additionally, one study showed that patients value the opinion of friends and family regarding potential esthetic changes (44).

Patients' knowledge, education, literacy, anxiety, and involvement in decision-making were also identified as factors related to PPC (7, 8, 17, 22, 54, 59, 64, 66). Contradictory results have been reported regarding the effects of patient literacy and education on PPC. A positive

association between literacy and recall has been found for both patients and parents (17). Another study, however, reported a positive correlation between these variables for parents but not their children (7). A patients' level of education was not associated with anxiety after a consultation (54), but their prior knowledge of a procedure did improve their engagement in shared decision-making (59). Two studies found that patients' anxiety appeared to limit understanding of the information delivered, and a second consultation appointment could not mitigate the anxiety (64, 66). Patients reported that receiving all the information, even more than they needed, did not necessarily make them more anxious (65). Similarly, directing patients to evidence-based resources about their proposed treatment did not affect their anxiety (59). Low patient involvement in PPC was detrimental to shared decision-making and treatment planning in two studies (8, 22).

Provider-Related Factors

Three provider-related factors were identified as being detrimental to PPC including lack of training in shared decision-making, institutional barriers, and difficulty acquiring accurate information delivery tools (22, 61, 62).

Reported institutional barriers were limited time for consultations, a limited number of visits to support decision-making, limited resources to include all the necessary team members, and conflict between shared decision-making and organizational referral pathways (22, 61, 62, 66). It was reported that the time allowed for a patient to make their treatment decision may be dictated by the organizational referral structure and not the patients' circumstance, creating conflict (22).

Having a secondary consultation was also a factor related to PPC; it may be appreciated and increase patients' awareness of some potential complications but does not appear to alleviate patient anxiety (65, 66).

Two articles reported the providers' outlook as a factor which may influence PPC. Using grounded theory, one study found that a providers' positive outlook towards dental phobic patients and their clinical encounter facilitated PPC and a holistic understanding of the patients' situation (67). Another study reported that provider perception of PPC in a consultation was

more negative (less patient-centered) than the patients' perception of the same encounter (37).

Differences in PPC based on patients of different ethnicities was investigated in one study; they reported that providers might communicate with ethnic minorities in ways that do not support shared decision-making (36). The orthodontic residents involved in the study were not negative or "cold" to minority patients, but some evidence suggested that providers may be more "task-focused" with minority patients.

Discussion

The objective of this scoping review was to better understand the extent and depth of the available literature regarding factors related to PPC during consultations for elective dental procedures. Nineteen factors related to information-delivery (four), the patient (nine), and care provider (six) were identified. Some factors may be modifiable to improve a PPC experience; others were related to external factors or preexisting individual perceptions. Not all factors will apply in every individual situation. This review appears to be the first to present a list of evidence-supported factors which are related to PPC in elective dental consultations. Identifying these factors is in important first step to better understanding their effect on PPC and to design interventions to target factors which are modifiable.

Most studies were cross-sectional in nature and focused on investigating recall of task-focused information. Preoccupation with studying recall is problematic because it does not adequately represent a patients' holistic communication experience. Our review supports the need for using different methodological approaches to answer research questions that cannot be answered with simple surveys, such as what patients value in PPC.

The available data support the conclusion that recall does not positively correlate with comprehension, nor does it necessarily improve the patients' experience (7, 16, 17, 47, 50, 64). Recall, therefore, is simply what was remembered, not what was fully understood. Evidence from general dentistry also suggests that patients who simply have a positive PPC experience, apparently unrelated to recall, demonstrate higher satisfaction, improved oral health literacy, and are less likely to leave a dental practice to seek treatment elsewhere (10, 11). Not

surprisingly, perceived poor PPC increases the likelihood of litigation against dentists (12). Existing research on recall is based mainly on ad-hoc questionnaires. Considering this approach, without stakeholder consultation to develop questions, any results are inherently skewed by the researchers' bias. Unfortunately, no validated survey appears to exist to evaluate recall universally or objectively. Further study of PPC during elective dental consultations would benefit from seeking to understand what the patients themselves value in communication.

Only three studies investigated communication from the patient's perspective using qualitative methods (22, 58, 60). None of these studies explored the influence of socio-emotional dialogue comprehensively despite its apparent importance as a component of holistic PPC in dentistry (1). Therefore, further research is needed to better understand the PPC process in elective dental consultations from the patients' perspective. No clear guidelines exist to aid elective dentistry providers in creating a positive holistic PPC experience for their patients.

Our findings are aligned with previous scoping, systematic, and literature reviews on informed consent, shared decision-making, and PPC in general and elective dentistry. These reviews have identified factors influencing PPC in more specific environments (38, 68-71). A scoping review regarding shared decision-making in dental implant consultations also identified the importance of patients' values and their influence on shared decision-making (68). The authors highlighted the need for understanding the social dialogue component further. Similarly, a systematic review regarding interventions designed to improve shared decision-making in orthodontics identified the method of information delivery, patient preconceptions, and patient literacy as factors associated with shared decision-making in the context of PPC (69). Yet another systematic review in orthodontics reported an association between PPC and patient satisfaction, which in turn was associated with various factors including information-delivery and a secondary consultation (38).

Consistent with our findings, a systematic review on the recall of informed consent information in adult general dentistry patients identified several factors related to PPC including patients' poor perception of comprehension, their preconceived ideas, and the use of

various information-delivery media (70). A recent literature review in general dentistry also identified several patient-related and provider-related factors including patient anxiety, provider perspective, and information-delivery methods, among others (71). These findings suggest that patients in a general dentistry situation may also experience some of the factors identified in elective dental consultations.

Our findings suggest there may be several ways to improve a patients' PPC experience. Regarding information delivery factors, there appears to be an advantage to delivering clear, concise, timely, personalized information in various formats. Limiting the quantity of information and providing it when it is needed may positively impact PPC. Findings regarding the use of specific information formats (e.g., written, verbal, visual, mind maps) were not consistent, as patients seem to respond to information formats differently depending on setting, circumstance, and previous experience. Similarly, combinations of formats do not seem to consistently improve PPC. In the context of elective dental consultations, information should be delivered to patients in various formats so they can better engage with the methods most meaningful to them. High-quality research is needed to inform the development of supplemental information media.

Addressing patient-related factors to improve PPC is promising; however, it may be challenging to address factors such as low patient literacy, high patient anxiety, low patient involvement, and lack of decision-making supports. Utilizing friends and family in the PPC process and developing patient-centered decision-making supports could be beneficial. Patients' ideas about the value, importance, seriousness, reliability, and perceived understanding of the information also appear to influence PPC. Mutual trust during PPC may mitigate these effects, ensuring that both patients and providers can trust the information delivered and allow it to shape the decision-making process (10). A patient who is well-engaged in PPC may better recognize their own biases, preferences, and limitations.

Provider-related factors can also be modified to improve PPC, including difficulty in acquiring accurate supplemental information media, lack of training in shared decision-making, and institutional barriers such as lack of time, lack of patient visits to support decision-making,

and organizational conflict in referral pathways. Determining the amount of time an individual deems to be satisfactory may be challenging. On an individual level, providers may improve PPC by participating in training about holistic patient wellness and reflecting on their approaches to PPC.

This scoping review has several limitations. Firstly, as is common with scoping reviews, no attempt was made to quantify the strength or quality of the evidence presented. Secondly, the search strategy did not appear sensitive enough to identify all finally included studies. As the literature review progressed, it became apparent that many authors used different terminology to identify the consultation appointment (e.g., “briefing appointment”, “informed consent appointment”). This limitation was addressed by careful searching of reference lists of included papers and related review articles. Lastly, PPC should not be oversimplified by simply analyzing the patient-provider interaction before a treatment decision is made, but instead as a continuous process during all treatment phases. This becomes especially important during ongoing elective dental treatments such as orthodontics.

Conclusions

1. PPC during consultations for elective dental procedures is a dynamic process shaped by various factors including information delivery factors, patient-related factors, and provider-related factors.
2. The existing body of research regarding PPC in elective dental consultations does not sufficiently examine a holistic PPC experience in a comprehensive manner.

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***Table 2-1*:** Included Studies

Author (Date)	Aim	Outcome Measure	Relevant Findings
Implantology			
Kashbour et al. (2018)	To explore approaches adopted by clinicians to give patients information regarding dental implant treatment during consultations, clinicians' reflections on their current practices, and suggestions to improve implant information provision.	Thematic content	Providing accurate and timely information can be challenging; patients have preconceived ideas and clinicians may have difficulty pursuing accurate supplemental information media. Information delivery could be more patient-centered.
Schwartz-Arad, Bar-Tal, & Eli (2007)	To evaluate of the effect of anxiety on a patients' ability to process relevant information prior to a stressful clinical situation.	Comprehension, dental anxiety, state anxiety, expected pain	The ability to process relevant information immediately before a stressful procedure may be impaired. Patients may report understanding but that perception is unreliable.
Odontophobia			
Kulich, Berggren, & Hallberg (2003)	To establish a systematic theory of dentist-patient communication and new methods to analyze how dentists interact with their patients.	Theoretical framework	Intuitive perception of a patient contributes to a holistic understanding. A dentist having a positive outlook appears to be a character trait, whereas the dentist viewing the encounter positively is a learned behaviour.
Oral Surgery			
Brons, Becking, & Tuinzing (2009)	To establish how much patients can recall of the information given during an informed consent interview before orthognathic surgery.	Recall	Reasons to not undergo a procedure were recalled less often than reasons to undergo a procedure. The mean recall rate of risks and complications was 42% but emphasized risks were remembered better.
Brosnam & Perry (2008)	To define the components of a gold standard for informed consent for third molar extraction and apply that to a group of patients.	Recall, comprehension, patient experience	Not all patients could recall all the complications and self-reported comprehension was higher than recall. A second consultation increased awareness of some potential complications. Few patients felt that the information given made them anxious.

Ferrús-Torres et al. (2011)	To evaluate the efficacy of written information given to patients to obtain informed consent.	Recall	Patients did not appear to remember most of the information received. More serious risks seemed to be better remembered.
Flett et al. (2013)	To explore the influence of the British Orthodontic Society Orthognathic DVD on treatment decision-making.	Thematic content	Patient stories were very influential when they were relatable. Animations of procedures were appreciated. Too much information at once can confuse the patient. The DVD was trusted but not always deemed useful.
Hanna et al. (2020)	To identify whether providing third molar extraction (TME) patients with pre-consultation internet guidance influences: (1) shared decision-making (SDM); (2) TME knowledge, dental anxiety, clinicians' satisfaction, and count of TME.	SDM, TME knowledge, dental anxiety, patient decisional control, provider satisfaction, number of third molars extracted	Patient knowledge improved patient participation in SDM, but the online resources did not improve patient knowledge and therefore did not contribute to improved SDM. Intervention did not alter anxiety or decisional control, nor did it improve clinician satisfaction.
Kazancioglu et al. (2015)	To identify the effects of watching a live taping of third molar removal on patients' anxiety levels before and after wisdom tooth extraction.	Dental anxiety, state anxiety, pain	A live video of the procedure increased anxiety pre-operatively. Patient education level was not associated with anxiety.
O'Neill, Humphris, & Field (1996)	To assess the influence of using an information leaflet on information recall.	Recall, patient satisfaction	The 'leaflet with prompt-to-read' group showed increased knowledge on retest. 'Leaflet without prompt' showed a trend to greater knowledge. Patient satisfaction was not simply related to leaflet provision.
Philips, Hill, & Cannac (1995)	To assess patients' impressions of video imaging as an information source for combined orthodontic and orthognathic treatment.	Treatment acceptance, patient expectation	Video imaging did not directly affect treatment decisions but did influence self-image motivations. Video images were ranked as the best information source and heightened patients' expectation for improvement in self-image.
Philips et al. (2001)	To assess whether an individualized treatment simulation presented as part of the presurgical consultation would affect patients' long- or short-term expectations.	Patient expectation, psychological distress	Individualized treatment simulation did not affect long-term expectations. For patients with high psychological distress, fewer problems were expected after simulation. For patients with no psychological distress,

			more problems were expected after simulation.
Ryan et al. (2011)	To assess patient satisfaction and patient involvement in decision-making using a new model for orthognathic surgery consultations.	Patient satisfaction, comprehension, patient experience	Both models were effective in relaying all the necessary information. Patients were satisfied with the "group information" model and particularly appreciated meeting someone who had already completed treatment. Self-reported comprehension was high.
Stirling et al. (2006)	To describe the factors associated with a patients' decision to have orthognathic treatment or not.	Thematic content, psychopathology scores	Some patients do not appear to be making informed decisions about orthognathic treatment. Support for decision-making and managing the emotional effects was lacking. Standardized information may provide an advantage.
Tanidir, Atac, & Karacelebi (2016)	To find out the ideal way of delivering information required by the patient before extraction of an impacted wisdom tooth. Dubbed video versus subtitled video versus verbal information only.	Patient satisfaction, dental anxiety, state anxiety, pain	No difference in anxiety but patients were more satisfied with video information. Patients prefer to be informed in the same way they were previously informed.
van Wijk & Lindeboom (2008)	To assess the effect of a second consultation on levels of anxiety regarding treatment.	Patient satisfaction, dental anxiety, state anxiety, expected pain, pain	The majority of patients appreciated a second meeting and viewed it positively. No difference was found in anxiety levels. Pain and anxiety were positively correlated.
Yusoff et al. (2019)	To compare the recall of complications of mandibular third molar surgery between two informed consent interventions.	Recall, patient satisfaction	No differences found between 'verbal information only' and 'verbal with written' information. Recall rate decreased over time. Patient satisfaction with information received was high, with no difference between groups.
Orthodontics			
Ahn et al. (2019)	To compare the efficacy of 3 methods (leaflets, generic mind maps, customized mind maps) for delivering information regarding short- and long-term recall.	Recall	All 3 methods improved information recall. Mind maps were slightly more effective than leaflets, with no difference between the generic and customized models. Recall rate decreased over time.
Amin et al. (2020)	To assess and compare patient and clinician perceptions of	Perceived "patient-centeredness"	Patients judged the consultation to be more

	patient-centredness for adults about to commence active orthodontic treatment, and to assess whether the following variables affected perceptions of patient- centredness: patient gender and age; clinician gender and grade; and stage of treatment.		patient-centered than providers did. Patients reported that "listening to the patient" was most practiced and "discussion of personal or family issues affecting the patient's health" was least practiced. None of the demographic variables had an effect, including level of provider experience.
Barber et al. (2019)	To explore the extent to which the current hypodontia care pathway at a dental hospital in Yorkshire promotes shared decision-making (SDM).	Thematic content	Low patient involvement, limited clinician training in SDM, the absence of support tools, and institutional barriers did not support SDM.
Carr et al. (2012)	To evaluate the effectiveness of a shortened explanation for obtaining informed consent as well as a personalized slideshow for improving understanding of risks and limitations.	Recall, comprehension	With a customized slideshow, verbal explanation of consent offered little advantage. Information given first (up to 7 items) was more often recalled correctly. Recall was greater than comprehension. Patients judged their comprehension higher than it was.
Chatziandroni-Frey, Katsaros, & Berg (2000)	To record the level of relevant knowledge among orthodontic patients and their parents to determine how they prepare for the first consultation and what level of briefing is required.	Patient experience	Majority of orthodontists and parents agreed the consultation was important for receiving information. Very few orthodontists engaged the child. Although most parents wanted the orthodontic problem explained to the child.
Dunbar, Bearn, & McIntyre (2014)	Objective of interest: To assess patients' opinion of face-to-face versus teleorthodontic consultations.	Patient satisfaction	Most patients felt that the face-to-face aspect of the consultation was important and preferred. No subjects were unsatisfied with the face-to-face consultation.
Kang et al. (2009)	To evaluate recall and comprehension using three different informed consent documents, as well as the association between literacy, anxiety, and socioeconomic status.	Recall, comprehension	Improving readability alone did not offer much advantage. Improving both readability and processability benefited both patients' and parents' recall and comprehension. Comprehension was over-estimated by participants. Participant literacy was positively associated with recall.
Koerber et al. (2004)	To explore whether orthodontic residents showed more social connection and concern for European ancestry patients,	Utterances (modified Roter Interaction Analysis System [RIAS] content)	Residents were not negative or cold to minority patients. They may communicate to minority patients in ways that might not

	were more negative to minority patients, and appropriately used interventions designed to overcome cultural differences.		contribute to mutual understanding.
Levine (2020)	To examine the effect of a humorous video on recall of orthodontic treatment consent information over time.	Recall	A humorous video appeared to improve information recall after 6 weeks. Both videos were rated as informative, but the humorous video was rated as more memorable. Participants were significantly more likely to agree to re-watch the humorous video.
Mortensen, Kiyak, & Omnell (2003)	To examine patient and parent understanding of informed consent in a clinic with ethnically diverse and low-income patients.	Recall, comprehension	Recall was not correlated with intelligence scores for children but was positively correlated with intelligence scores in adults. Recall was poor regarding reasons for treatment, procedures, risks, and responsibilities of the child.
Nasr, Sayers, & Newton (2011)	To determine the impact that information leaflets have on patient expectations of orthodontic treatment.	Patient expectation	Additional written material about orthodontics did not alter patients' expectations for treatment.
Parker et al. (2017)	To assess the efficacy of a personalized decision-making aid (PDA) compared with traditional information provision for adolescent patients considering fixed appliance orthodontic treatment.	Decisional conflict	No significant difference in decisional conflict with written/visual PDA intervention.
Patel, Moles, & Cunningham (2008)	To determine the factors that affect patients' retention of information provided in different formats, computer visual versus leaflet.	Recall	Recall was higher in the computer-based visual information group but decreased over time at the same rate in both groups.
Pawlak et al. (2015)	To determine if adding a short videotape presentation reiterating the components of informed consent improved information recall.	Recall, comprehension	There was no benefit to adding the video to the already improved information delivery method (from a previous study). "Chunking" the information improved recall and comprehension. Consider presenting less significant information last.
Thickett & Newton (2006)	To determine the effect of three different methods of presenting information on the recall of information over time	Recall	Recall was higher using mind maps and acronyms instead of the leaflet. Recall decreased with time at the same rate for

			all 3. Initial recall is a good predictor of future recall.
Thomson, Cunningham, & Hunt (2001)	To compare recall of orthodontic information provided in written, visual, or verbal formats.	Recall	Parents remembered more information than their children. Written information improved recall. Information regarding oral hygiene, day-to-day effects of treatment, and importance of retainers was not well recalled.
Wright et al. (2010)	To test the effect of supplemental written information on anxiety, motivation and apprehension related to treatment, and compliance in the early stages of fixed appliance therapy.	Patient anxiety, motivation, apprehension, and compliance	Written + verbal information increased patient motivation but did not affect anxiety or apprehension. Written information may increase patient compliance with treatment.
Prosthodontics			
Almog et al. (2004)	To determine which of four consultation methods helped patients best understand proposed treatment for maxillary diastema closure (wax mock-up, composite mock-up, before and after photos, or computer simulation).	Patient satisfaction, comprehension, treatment acceptance rate	Personalized computer simulation was the preferred method, helped the most to understand treatment, and improved treatment acceptability rates. Patients appeared to value input from friends and family if given information/simulations to take home.
Hu et al. (2008)	To evaluate the effect of introducing the Dental 3D Multimedia (D3DM) System on dentist-patient interactions. Note: only results for second timepoint are relevant for this review.	Patient satisfaction, comprehension	D3DM significantly increased patient satisfaction after the first introduction. Patients reported higher comprehension with the D3DM. Satisfaction with socio-emotional communication was not improved. Patients preferred D3DM over traditional communication.
Papasotiriou, Nathanson, & Goldstein (2000)	To assess the effectiveness of computer imaging by comparing the reactions of patient and dentist to conventional consultations versus computer imaging.	Patient satisfaction, treatment acceptance rate	Computer imaging consultations led to a higher treatment acceptance rate and patient satisfaction at the end of treatment.

Table 2-2: Demographic Data

Study Location					
UK	USA	Europe (other)	Asia	Other	
16	10	7	2	2	
Dental Discipline					
Orthodontics	Oral Surgery	Prosthodontics	Implantology	Odontophobia	
17	14	3	2	1	
Methodology					
Prospective	Cross-sectional	Qualitative Description	Randomized Controlled Trial	Grounded Theory	
17	16	4	7	1	
Data Collection Methods					
Questionnaires	Interviews	Observation/Audio Recording		Other	
29	11	2		1	
Outcome Measures					
Recall	Comprehension	Patient Satisfaction	Anxiety/Fear/Pain	Thematic Content	Other
14	9	9	6	4	21

Table 2-3: Factors Identified Which May Influence PPC

Information delivery factors:

1. Method of delivery
2. Personalization of information
3. Time elapsed since delivery
4. Quantity of information delivered

Patient-related factors:

1. Preconceived ideas
2. Perceived seriousness or importance of the information
3. Perceived reliability of the information provided
4. Perceived understanding or comprehension
5. Opinions of friends and family
6. Available support systems
7. Anxiety level
8. Literacy level
9. Low patient involvement

Provider-related factors:

1. Training in shared decision-making
2. Difficulty in acquiring accurate information delivery tools
3. Institutional barriers
4. Availability for a secondary consultation
5. Provider outlook
6. Ethnicity of the patient

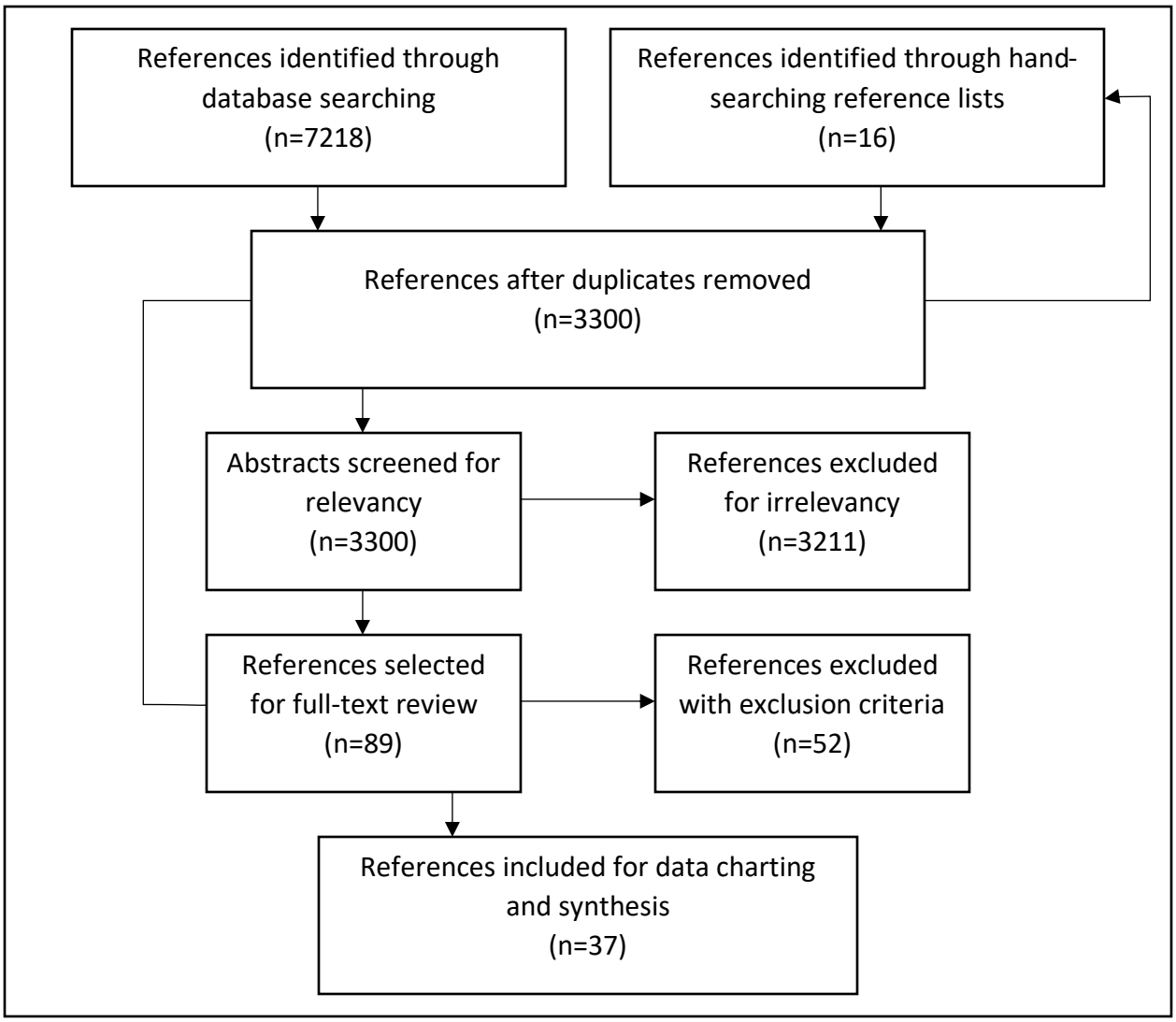

Figure 2-1: Search Flowchart

Table 2-4: Search Parameters for Medline, Embase, and PsycInfo, (Ovid)

1	(dentist* or dental).mp.
2	consult*.mp.
3	exp “Referral and Consultation*/
4	2 or 3
5	communicat*.mp.
6	1 and 4 and 5
7	(consult* or communicat*).ti.
8	1 and 7
9	6 or 8

(TITLE-ABS-KEY (dentist* OR dental OR periodont* OR orthodont* OR endodont* OR pedodont* OR prosthodont*) AND TITLE-ABS-KEY (consult*) AND TITLE-ABS-KEY (communicat*)) OR (TITLE-ABS-KEY (dentist* OR dental) AND TITLE (consult* OR communicat*))

Figure 2-2: Search Parameters for Scopus

CHAPTER 3: PARENT PERSPECTIVES OF PATIENT-PROVIDER COMMUNICATION IN ORTHODONTIC CONSULTATIONS: A QUALITATIVE DESCRIPTION STUDY

Abstract

Patient-provider communication (PPC) is important to improve oral health outcomes and patient satisfaction. Research on PPC in orthodontics has traditionally focused on information recall, which does not represent the depth and complexity of PPC. To date, little has been documented regarding parents' perspectives of PPC, which may highlight factors influencing that interaction. This study aimed to understand parents' perspectives of PPC during orthodontic consultations. Qualitative description guided the study design. Parents of prospective patients were purposefully sampled from the Graduate Orthodontics Clinic, University of Alberta, Edmonton, Alberta, Canada. Data were collected via semi-structured telephone interviews and analyzed using inductive, manifest thematic analysis. Rigour was maintained through methodological coherence, investigator responsiveness, data saturation, theoretical thinking, and a thorough description of the setting and participants. Four themes were identified which outline parents' views of ideal PPC; PPC should be inclusive, understandable, truthful, and holistic. *Inclusivity* referred to the involvement of doctors, staff, patients, and parents in PPC, each with a unique role. *Understandability* referred to methods of communication and information delivery valued by parents. *Truthfulness* reflected parents' wish to be given an honest assessment of their child's diagnosis and treatment options. *Holisticness* encompassed parents' desire for comprehensive discussion and patient-provider interaction. Parents' views highlight the importance of a team approach to PPC where patients, providers, and parents are actively involved. Additionally, the complexity of the process is

evident. Further research is needed to better understand specific factors and perspectives of other stakeholders, including adolescents.

Introduction

Patient-provider communication (PPC) is a critical component of the orthodontic patient-provider relationship (72, 73). Successful PPC during an orthodontic consultation should bridge the information gap between patient and provider in a way that allows the patient to make an informed treatment decision and that is responsive to their interests, preferences, and values (4, 35). Key elements of PPC include task-focused dialogue and socioemotional dialogue (32, 33). The former refers to task-focused information regarding the patient's health, dental condition, treatment, prognosis, and financial commitment. The latter includes pleasantries, empathy, and reassurance (32). The consultation appointment in orthodontics is responsible for relaying the necessary task-focused information, meeting the legal and ethical requirements for informed consent, and ultimately arriving at a management decision. Existing guidelines primarily focus on informed consent, which does not represent the complexity of PPC. Therefore, PPC in orthodontic consultations is only partially informed by existing guidelines (3, 32, 34, 35).

Unfortunately, little has been documented regarding parents' perspectives of PPC and their role in the process. Research has found that parents comprehend and recall information better than their children (2, 7, 15). One study, using questionnaires, identified that parents wished to have their children engaged in PPC and had a strong desire to understand diagnostic and treatment information themselves (8). A recent qualitative study regarding particular orthodontic patients with hypodontia reported that parents appear to entrust decision-making to the dental team and viewed themselves as an advocate for their child (22). PPC has been reported to be a preferred way of exchanging orthodontic information compared to other media, while a perceived positive PPC experience has been linked to improved overall patient satisfaction (8, 72, 73).

Traditional approaches to studying PPC in orthodontic consultations have focused on different information delivery formats and their effect on information recall (69, 74). Recall, however, is apparently unrelated to overall patient satisfaction or involvement in decision-making (72, 73); nor does it represent the entirety of PPC. Several other factors have been

identified in the literature which may shape PPC during orthodontic consultations including humour, patient and provider ethnicity, access to support tools, clinician training in shared decision-making, and perceived patient-centeredness (18, 22, 36, 37). Due to the emphasis on studying information-delivery and recall, many of these factors remain poorly understood. PPC appears to be a complex, multifaceted process. More research is required to better understand how parents perceive PPC in orthodontic consultations and what they may value in that process.

Qualitative research is well-suited to providing a straightforward account of a participants' perspective. Parents, as the responsible decision-makers, are well positioned evaluate PPC during orthodontic consultations. To date, no study has comprehensively documented their experiences or perspectives. The objective of this study was to better understand the perspectives of patients' parents regarding PPC during orthodontic consultations. Specifically, we sought to answer the question "what do parents of underaged patients consider to be ideal PPC during orthodontic consultations?". A better understanding of these factors may inform the development of high-quality guidelines which should improve the PPC experience and involvement in shared decision-making for parents.

Methods

Study Design

The study design was guided by qualitative description, which is well-suited to providing a straightforward account of participants' perspectives on an issue or topic (25, 75). The primary researcher (CP) adhered to a constructivist paradigm, which implies a relative ontology (reality is socially constructed) and subjective epistemology (the world is what we think of it). Ethics approval was obtained from the Research Ethics Board (REB) at the University of Alberta.

Participants, Setting, and Recruitment

This single center qualitative study was conducted from September 2021 to March 2022 at the Graduate Orthodontics Clinic, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, Canada. The Clinic offers a wide range of orthodontic services provided by

orthodontic graduate students under the supervision of a licensed orthodontic specialist. The consultation appointment, which is a new patient's first appointment, consists of a clinical examination, standardized records-taking, a discussion with the orthodontic resident and staff orthodontist, and a follow-up discussion with a treatment coordinator. The typical process is for the patient to present on their own and have their records taken by a dental assistant. Following records-taking by support staff, an orthodontic resident completes a clinical exam, then the findings are considered, and a working treatment plan is proposed by the staff orthodontist. The treatment coordinator then brings the parent in for a group discussion. Lastly, following group discussion, the parent, patient, and treatment coordinator continue the conversation in the coordinator's office. Participants were purposefully sampled through the new-patient-intake process at the Clinic. The inclusion criteria were parents of an assumed minor patient who had recently undergone an orthodontic consultation and were fluent in English. Ideally the consultation was completed less than 2 weeks before the interview time, but to avoid bias no demographic data were collected to confirm the dates. Recruitment was completed by two treatment coordinators who were responsible for the patient-intake process. They were trained by CP to present the research, using a script, and obtain verbal consent to contact. No compensation was offered. Those potential participants who could be initially reached via telephone were scheduled for an interview at their convenience within a few days. An information sheet and consent statement were provided in advance, via email, with their consent. Interviews began with an explanation of the research, an opportunity for questions, reassurance that participation was voluntary, and verbal consent as per the REB recommendation. Only two participants who were reached declined to participate, citing lack of time and illness. Two others were scheduled for an interview but were unreachable at that time.

Data Collection

Data were collected via semi-structed interviews using a bespoke interview guide developed in consultation with a qualitative methodology expert (AP) and members of the research team. The guide was adjusted iteratively based on memos and research notes as data collection progressed and emerging themes became apparent. Participants were given a 2-

week period to withdraw their consent to participate, which no participant chose to do. The recordings were transcribed verbatim by a professional transcriptionist. The transcriber anonymized the written data and the original recording was deleted before analysis. No demographic or identifying information was collected deliberately. After nine interviews, CP and AP met to ensure that data collection was meeting the research objective. A further six interviews were conducted.

Data Analysis

Ongoing familiarity with the data was maintained by reading and rereading the transcriptions, as well as checking transcription accuracy as necessary. At the time of analysis, CP was not aware which orthodontist or treatment coordinator the patient had seen, or when they had attended the Clinic. Data were analyzed with inductive, manifest thematic analysis. The first nine transcriptions were coded to identify explicit meanings in the data related to the research objective. Codes were developed iteratively and adjusted as necessary as themes and subthemes emerged. A thematic structure was developed and checked against the data for relevance, consistency, and accuracy of reporting. That structure was then applied to the final six interviews. Representative quotes were chosen to illustrate the themes and subthemes identified.

Rigour

Several strategies were employed to ensure methodological rigour. Those included choosing a method which was well-suited to answering the research question (methodological coherence), ongoing analysis and familiarization with the data (investigator responsiveness), data saturation with an appropriate sample size, describing the participants and setting in detail, and ensuring accuracy and relevancy of themes as they developed (theoretical thinking). Through purposeful reflexive thinking, both disciplinary and personal, CP was also conscious of his own biases and close relation to the study objective.

Results

Fifteen interviews were completed, five with male participants and ten with female participants. Four themes were identified: inclusivity, understandability, truthfulness, and holisticness. Together they describe what parents believe to be ideal PPC during an orthodontic consultation. Figure 1 shows a thematic map.

PPC should be Inclusive

Participants valued a team approach to PPC including the doctor, staff, patient, and parent. The doctor was expected to be directly involved, as one participant said:

> "… yes, I got the information, but when you take it from the dentist, himself or herself, it will be better …" – P5

Similarly, participants believed the staff should be part of the whole process. Participant #8 iterated the point:

> "This time I started with both … people, [the] doctor and the coordinator … that was a good thing …" – P8

Directly involving the child, not only speaking to the parent, was a persistent idea. One participant articulated:

> "Well, I think, most of the time, we [overlook] the child's … situation in this. Like, mostly, people just want to talk to the parents, but it's really important to talk to the child themselves no matter what age they are." – P4

Lastly, participants were clear that, as parents, they should also be included in the whole process. In fact, they lamented being separated from their children for any part, as one parent mentioned:

> "… it would have been nice if I could have been there with the kids to kind of understand what was happening and what … they were doing" – P14

Furthermore, parents believed that each party had a specific and unique role. For the doctor, parents valued clinical, task-focused information directly from them. One parent said:

> "… I don't know if the orthodontist person is the better person to say, 'Well, this is the pros of [clear aligners]; this is the pros of the metal braces.'" – P10

As for the staff, parents appeared to value receiving information regarding financial commitments, insurance, and answers to follow-up questions regarding task-focused information. Although participants did comment on the role of administrative staff, it was chiefly the treatment coordinators who were discussed, as one parent expressed:

> "… honestly, the treatment coordinator was exceptional, and when we were talking about things … any questions I had … she was right there, well versed; … comfortable with what needed to happen with insurance, all of it, and it was … well done." – P1

Parents believed their role was to understand the information given on behalf of their child. Some parents believed their child would not necessarily be able to comprehend all the information. Participant #5 said it well:

> "Oh, it's very important for me to know … what exactly it is they're doing because [I'm] sending my daughter in there to get stuff done, and … I don't feel like it's something I should do blindly." – P13

Considering the patient themselves, parents appreciated their direct involvement as part of shared decision-making. One participant explained:

> "… [as kids] sometimes they feel like they don't have a voice in these kind of situations … So, I think it's important that the professionals actually speak to them … so that they can feel like they have a choice in the matter." – P11

PPC should be Understandable

A common report was that the consultation can be overwhelming, which may lead to miscommunication. Parents wished for the information to be understandable to mitigate stress

and confusion. A key component to their perceived understanding was the opportunity to ask questions and have them answered. One interviewee elaborated on the idea:

> "I don't have … questions written down, but I have them kinda in my head, and it's really frustrating when you feel like you're rushed and don't get to ask the questions that you have, or … you don't get the full answer that you need." – P4

Secondarily, participants believed it was important not to be rushed in decision-making or conclude the consultation before they demonstrated understanding. Some felt that being rushed to make a treatment decision was a form of coercion, and that was not valued. Participant 6 explained:

> "… I like to be able to spend enough time with … the doctors – I don't like to be rushed out or anything like that. I like to be able to mull over the conversation and ask questions as they come up." – P6

It was apparent that dental terminology and difficult-to-understand language was neither valued nor helpful for participants. As one parent said:

> "… it wasn't littered with extreme dental terms; it was down to earth. … the information was perfect." – P2

Finally, individual participants suggested unique ways which may have helped them understand the discussions. The common theme was that various communication forms may be useful. Suggestions included using pictures, radiographs, written information, emails, tutorials, before-and-after cases, and improved websites. Participant 3 appreciated pictures and x-rays:

> "That amount of information, they gave it to me with pictures that were worth 1000 words. … but what I really loved … were the images that were shown, … the x-rays were also shown to me, as well, along with even just saying, 'This is happening; that is happening' …" – P3

PPC should be Truthful

Truthfulness encompassed three subthemes of honesty in relation to the patients' diagnosis, treatment recommendation, and treatment necessity. Participants commented that understanding their child's diagnosis was valued, as one interviewee said:

> "I really love the fact that … I was able to understand [my daughter's] situation, and … got the information I needed." – P3

Regarding any recommended treatment, participants wanted a clear and straightforward idea of 'what' and 'why'. Participant 7 elaborated on that point:

> "It was no fuss; it was just very honest and straightforward and to the point, and that seemed right to me, and it resonated as being, like, a very true and honest perspective on what [my son] may need and how we would approach it" – P7

A desire for an honest assessment of the necessity of treatment was a very prevalent idea. Parents strongly believed that recommended treatment should be absolutely necessary, designed to address an identified problem, and done only when their child was ready. One parent expressed this clearly:

> "I appreciated when [they] mentioned the surgery and just said … 'It's probably not necessary. Like, if you want to do it, we can obviously do that' … kind of giving me [their] judgement call on whether this is actually necessary or not." – P12

PPC should be Holistic

Holisticness, in this sense, means 'all-encompassing', and implies that PPC should be thorough yet concise, friendly yet task focused. A key component valued by participants was task-focused dialogue including treatment details, treatment options, oral hygiene, and financial information. Details which were valued included treatment duration, frequency of appointments, function of appliances, and expected discomfort. Comments about the financial aspect of treatment was one of the most prevalent discussion points. Participant 9, for example, lamented the lack of details:

> "I guess that communication was lacking in that [the orthodontist] told me what [my child] needed, or what was recommended, but didn't really go into detail." – P9

A second key component valued by participants was socioemotional dialogue including respect, reassurance, professionalism, and personalism. Parents desired to feel comfortable during PPC and expected a balance between task-focused and socioemotional dialogue. One participant explained:

> "You can still provide all the information while being friendly and chatty, like, the [treatment coordinator], and the [orthodontist were] just very calm, and just said what [they] needed to say … it wasn't uncomfortable or an awkward situation at all, just friendly and chatty … but still getting [their] point across." – P10

Participants preferred task-focused information which was relevant and efficient. There may be individual needs regarding the amount of information desired, but efficiency was a nearly universal sentiment. Too much information may contribute to confusion. Participant #4 said:

> "… I feel like you don't want to … give too much information because then, as a parent, you're like, 'Oh, okay, I think I only remember, like, half of what they were talking about because they gave me too much information' …" – P4

Lastly, participants believed that PPC is a continuous process, not limited to the consultation appointment itself. Participants suggested that information delivered before the appointment may mitigate frustration and anxiety, and that information delivered after the appointment is valued as reference material. One participant, for example, wanted to have information available to read on their own time:

> "… I really wanted to have … a document, so that I can reread that … at my own time, because I might have missed [something] when [they were] explaining …" – P8

Discussion

This study sought to better understand the perspectives of parents of underage patients regarding PPC in orthodontic consultations. To our knowledge, this was the first study to

comprehensively report parents' perspectives of PPC during an orthodontic consultation. Four themes were persistent throughout the data which describe ideal PPC from the parents' perspective; those being that PPC should be inclusive, understandable, truthful, and holistic.

Considering inclusivity, participants believed that the doctor, staff, patients, and parents should be part of the PPC process, each party with a unique role. The doctor (orthodontist) was often expected to provide diagnostic and treatment information directly. Staff members were appreciated for elaborating on the information given by the doctor and explaining financial information. It is apparent that staff members should be well trained, have excellent communication skills, and be well calibrated with the doctor. Parental involvement was typically expressed as a way to alleviate patient anxiety and ensure understanding. Participants often mentioned that they did not believe their children could adequately comprehend all the information given, which is supported in the literature (2, 7, 15-17). Parents occasionally suggested that they believed their child to be mature enough to make a treatment decision. This is supportive of the idea of a 'mature minor' in Alberta, where a provider can assess the ability of a legal minor to make a treatment decision (76). Parents generally lamented being separated from their child at any point, regardless of the trust they had in the doctor or staff. Similar to other findings, the patient themselves were seen as an equal part in the conversation, with parents appreciative of their direct involvement (8). Providers may be able to improve the parent's experience by engaging the patient directly.

Regarding understandability, our results indicate that facilitating questions, allowing time to process the information, avoiding jargon, and using various information-delivery formats were all valued. Allowing for questioning was reported to be an essential component of satisfactory PPC. Some participants seemed comfortable asking questions directly of the doctor, while others found it to be easier with the staff. This may be reflective of the time constraints orthodontists face in their clinical schedules, which are recognized by parents. The feeling of being rushed, or coerced, into a decision was reported as a negative aspect of PPC. Similarly, orthodontists have reported that time constraints often limit information exchange and therefore rush decision-making (22). Participants preferred explanations in "plain English", although the effect of using jargon in the orthodontic setting is not completely understood.

Studies have found that information provided by orthodontists can be difficult to understand (22, 77). In contrast, one study found that improving readability alone did not affect information recall or comprehension (17). It is likely in the best interest of both the patient and provider to use non-technical language in discussion. The use of different information-delivery models has been studied extensively, with a consensus that different patients, or parents, will value different models (69, 74). Research has shown that improved information-delivery tools can be effective for both patients and parents (15-17, 20).

Truthfulness, or honesty, was a common sentiment regarding diagnosis, treatment recommendation, and necessity of treatment. This was closely tied to the perception that orthodontists, as operators of a for-profit business, may prescribe more treatment than is necessary. Little appears to be documented about this phenomenon, apart from an outdated British report which unfortunately confirmed the publics' suspicion that, at the time, orthodontists were over-prescribing treatment (78, 79). It is not clear whether this problem persists in North America, but the perception appears to be present based on our data. Regarding treatment, parents did not wish to put their children through uncomfortable procedures without a clear indication. Providing a straightforward and pragmatic explanation of the patient's condition was valued and appeared to mitigate apprehension. This contrasts with studies that have evaluated treatment apprehension in adolescent orthodontic patients; improved decision-making aids and supplementary written information were not shown to reduce decisional conflict or apprehension (53, 57).

Holistic PPC may be considered to include task-focused and socioemotional dialogue, delivered in a way that is satisfactory to both patient and provider. The importance of each aspect of PPC has been discussed extensively in medical literature, some of which has been applied to dentistry (32, 33). Our results suggest that patients' parents value information that is concise, thorough, relevant, and focused. Socioemotional dialogue appears to be valued as an adjunctive component of the experience. An apparent challenge is presented to orthodontists to provide information in a way that is thorough but not overwhelming, and with adequate time allowed but still efficient. Additionally, delivery should not be limited to the consultation appointment itself, but should occur before, during, and after. Delivering information before

the appointment appears to be a practical way to reduce anxiety and improve the overall experience for a patient and their family. Participants recognized that orthodontic treatment was completed over a long period of time and that information may be forgotten, which is supported by existing literature (15, 18, 19, 21). Similarly, informed consent should be an ongoing process; patients and their families should be able to continually participate in informed decision-making should the treatment plan change (3).

Few studies are available which have explored parents' perspectives of PPC in orthodontic consultations. Our results appear to align with existing data. One study found that participation in PPC during orthodontic consultations was valued by parents, patients, and orthodontists (8). A recent qualitative study reported that patients and their parents recognized the roles of the dentist, staff, and themselves in PPC during orthodontic consultations for particular patients (22). Like our participants, they expressed a desire for task-focused dialogue and to understand the information. Some research has been done regarding adult patient perceptions of PPC. In contrast to our results, one study, using questionnaires, reported that adult orthodontic patients felt being listened to was the most patient-centered aspect of a consultation (37). This idea was not completely supported by our data, where participants seemed to value 'asking questions' and 'time to process information' the most. This may indicate a difference in how adults perceive PPC when it is directly (patient themselves) or indirectly (parent of underage patient) related to them. A qualitative study using thematic analysis identified several themes like ours, including communication, professionalism, and personalism, which were associated with overall adult-patient satisfaction (73).

The primary limitation of this study is the single-center design; data cannot necessarily be extrapolated to other settings or jurisdictions. Conversely, it may be perceived as a strength of our data that multiple licensed orthodontists, orthodontic residents, and staff members were participants in the consultations. The variety of interactions provided a wide range of different experiences for participants to report on. There is a possibility that participation bias resulted in skewed participation from parents who had an exceptional experience, either good, bad, or simply unusual. Given the wide variety of responses in the data however, this seems unlikely. Participants discussed a wide variety of circumstance, opinion, and levels of satisfaction.

The institutional setting is not considered a limitation. The general consultation process is structured similarly to some private practice environments, except for the graduate student component. Furthermore, previous studies have suggested that information demand from parents is similar between academic and private practice environments, and parents do not indicate a difference in "patient-centeredness" between orthodontic residents and licensed orthodontists (8, 37). Additionally, a typical consultation at the University of Alberta Graduate Orthodontic Clinic involves both the orthodontic resident and the licensed orthodontist as active participants.

Conclusions

1) Our findings highlight the importance of a team approach to PPC where providers, parents, and patients are actively involved.
2) Providers are challenged to deliver information in a way that is both personal and professional, thorough yet efficient, and detailed yet straightforward.

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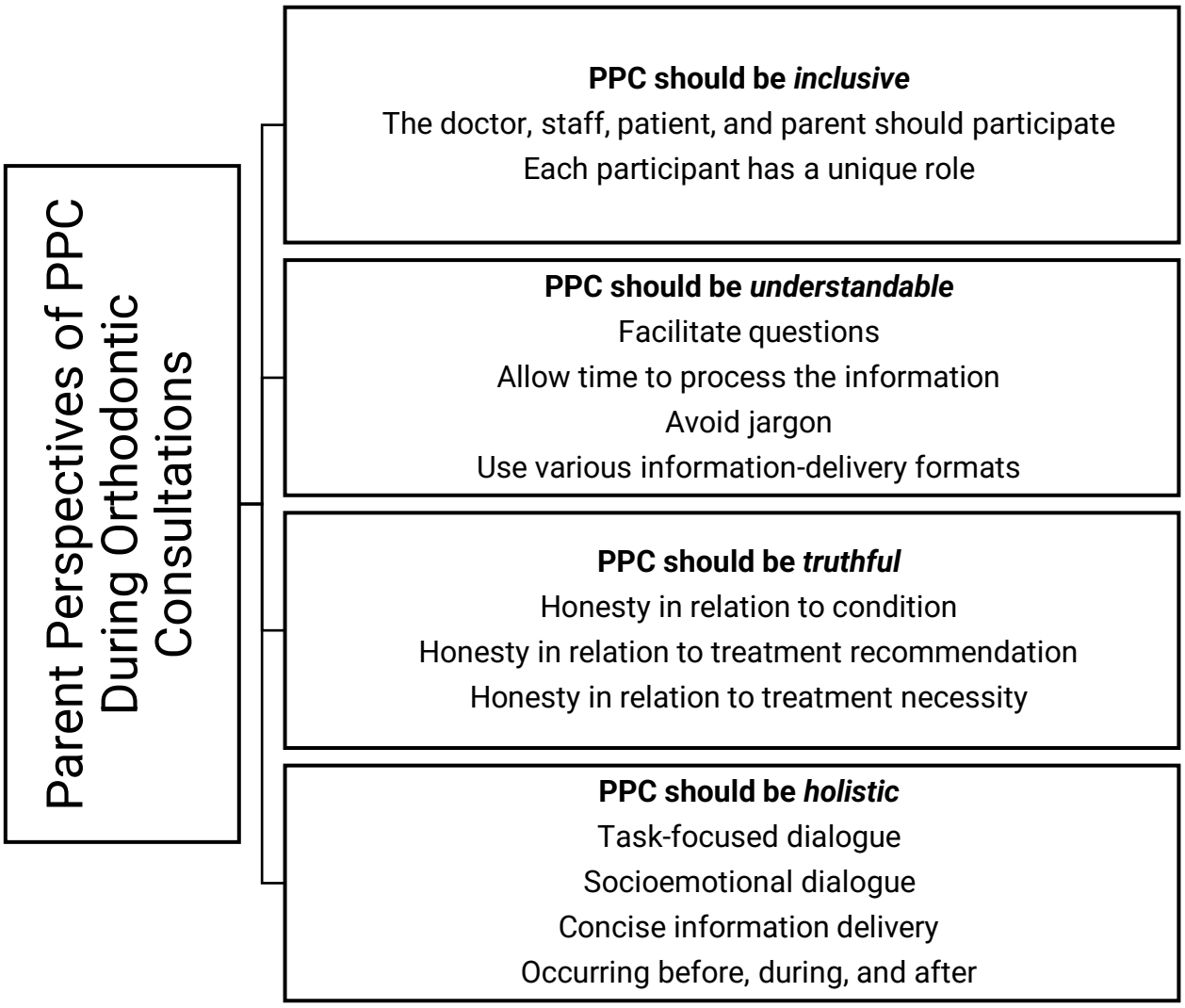

Figure 3-1: Thematic Map

CHAPTER 4: SUMMARY DISCUSSION

Scoping Review (Chapter 2) Approach

The scoping review approach was chosen to describe existing research activity around patient-provider communication (PPC) during elective dental procedures. Recognizing that many of the potential components, influences, and factors regarding PPC may be diverse and difficult to quantify, a scoping review was deemed appropriate (23). Additionally, it is well-suited to rapidly identifying research gaps (24). Compared to a systematic review, a scoping review allows for inclusion of diverse evidence, multiple study designs, and broader research questions (24). An apparent disadvantage of the scoping review approach is the lack of quality-of-evidence assessment, which may challenge the validity, interpretation, and usefulness of conclusions (23, 80, 81). A systematic or meta-analysis approach, however, is simply not feasible when an area of research is poorly understood or exceptionally diverse. A specific, clinically relevant questions is elusive in these scenarios. Despite a lack of critical appraisal of the evidence, an analytical approach is still taken towards the data, which is an advantage over a literature review approach (23, 24). Specific to this study, the chief limitation was a lack of sensitivity in the initial search parameters. This was mitigated with a thorough review of reference lists of inclusions and similar review articles. Ultimately, a scoping review for this project proved useful to map the existing research around factors which may be related to PPC during consultations for elective dental procedures and identifying an apparent gap in our comprehensive understanding of parent perspectives. To some degree, this helped inform the development of the interview guide used in Chapter 3.

Qualitative Description (Chapter 3) Approach

Qualitative research, as a whole, intends to generate knowledge which is grounded in human experiences (82). Data collection is accomplished in natural settings which are sensitive to the people and places under study (83). This was an ideal way, then, to approach the complex and human-centric idea of interpersonal communication between patients and dental care providers. Qualitative description was chosen to guide the study design as it is well-suited to providing a straightforward account of an experience or perspective (25). Although the data

cannot be free of interpretation through the consciousness of the researcher, an inductive, manifest, low-interference approach to analysis results in findings which are close to the data (25, 75). Of course, some interpretation is required to arrive at conclusions, as with any qualitative or quantitative approach. These conclusions are, nevertheless, based in evidence (82). Several limitations are apparent in this approach. Firstly, it may be difficult to extrapolate findings to other locations or private practice settings, although the consultation process is similar. Our data, and the associated findings, reflect the perspectives of a group of participants in a specific university setting in Edmonton, Alberta, Canada. It is apparent that patient-provider dynamics may change between different environments, and this may influence the PPC experience. Secondarily, readers may feel more comfortable with more traditional conclusions based on statistical analysis of quantitative data. The simple truth is that not all data can be quantified numerically (82). No less importance should be given to qualitative findings, however, as validated, extensive processes of rigour are employed.

Summary Findings

Several of the factors which may be related to PPC during consultations for elective dental procedures, as reported in Chapter 2, were similarly identified in the primary research, Chapter 3. New factors were also identified.

Information Delivery Factors

Each of the four information delivery factors identified in Chapter 2, including method of delivery, personalization of information, time-elapsed since delivery, and quantity of information delivered were components of parents' perspectives of PPC in orthodontic consultations. 'Method of information delivery' has been highly studied and conclusions are difficult to draw on the effectiveness of specific methods (69). Similarly, our participants suggested several methods which they may prefer, individually, but little consistency was noted. More consistently, avoiding jargon was valued by participants. Previous research, however, has failed to demonstrate a quantitative link between improved readability (reduced jargon) and information recall (17). Personalization of information was valued by participants, as they expressed a clear desire to understand their child's unique situation. Time-elapsed since

information delivery has been shown to reduce recall and comprehension for patients and parents (15, 19, 21). According to our data, parents seem to be aware of this phenomenon and frequently requested information be delivered after the consultation for their own reference. Quantity of information delivered was also identified by participants as an important part of PPC; parents generally valued concise information delivery. Previous research based on information recall have shown that giving too much information may confuse the patient (16, 20, 58). Our participants, however, expressed diverse opinions on how much information was needed; the over-arching theme was not less or more information, but instead efficiency in information delivery and assurance of understanding.

Information delivery factors which were not previously identified but became apparent in this study included the efficiency of information delivery and effects of patient-provider questioning.

Patient-related Factors

Of the nine patient-related factors identified in Chapter 2, four were apparent in our data, including perceived reliability of the information provided, perceived understanding or comprehension, anxiety level, and low patient involvement. One previous study in orthodontics identified that participants judge the reliability of information provided, and that may change how they respond (58). Similarly, our findings show that participants believed the role of the doctor was to provide clinical task-focused information, which may be considered more reliable than having received the information elsewhere. Perceived understanding was a key theme in our data. Previous research has shown that perceived understanding, although frequently overestimated, is an important component of PPC from the parent's perspective (8, 16, 17, 22, 65). Our data corroborate this finding, as parents appear to highly value an understanding of their child's diagnosis and treatment options. No attempt was made in this study to quantitatively validate understanding; instead, we were interested in parents' perception of their own understanding and what they believed contributed to that understanding. Research in the field of elective oral surgery has shown that the relationship between anxiety and PPC is apparently complex (54, 59, 64-66). Our participants expressed a sense of anxiety and being

overwhelmed regarding some components of the consultation process. It was suggested that information delivered before the consultation, involvement of the parent, and creating a personable environment may mitigate anxiety. Research has shown that low patient involvement can be detrimental to PPC and shared decision-making (8, 22). Our data supports this finding; the theme of *inclusivity* outlined the desire for direct involvement of the parent and child patient.

Patient-related factors that were not previously identified but became apparent in our data included the individual time required to process information and effects of socioemotional dialogue.

Provider-related Factors

Of the six provider-related factors identified in Chapter 2, two were apparent in our data, including institutional barriers and provider outlook. Previously identified institutional barriers which were also apparent in our data included limited time for consultations and limited resources to include all the necessary team members (22, 61). The amount of time desired for a consultation appointment appeared to be an individual preference but efficiency in information delivery was a nearly universal theme. Our data clearly demonstrates that parents value PPC which is inclusive of the whole team (doctor, staff, patient, and parent). One study reported that a positive provider outlook contributed to a holistic understanding of the patient's situation (67). This is somewhat supported by our data as parents valued an appropriate amount of socioemotional dialogue during PPC (*holisticness*).

Factors not previously identified, but apparent in our data, included the role of staff members in PPC, the effects of receiving information from staff versus provider, the effects of perceived honesty, and the extent to which providers should engage in socioemotional dialogue.

Recommendations

Based on our findings, several recommendations can be made regarding PPC during orthodontic consultations.

1. PPC is a complex and dynamic process involving participants with individual needs. A variety of approaches may be useful to ensure a positive experience with a broader population.
2. Parents may benefit from be given a chance to express their individual communication needs prior to, or during, the consultation process.
3. Patient-related, provider-related, and information delivery factors may influence PPC outcomes in different ways under different conditions. Being cognizant of those factors and their variability within your clinical environment is critical.
4. PPC should be team-oriented and well-coordinated between providers and their staff. Parents, patients, doctors, and staff all have a role to play in supporting PPC.
5. Orthodontic consultations can be overwhelming for parents of patients. Being intentional towards ensuring their comfort and understanding may be beneficial. A chance for a secondary follow-up consultation, if requested, should be facilitated.
6. It may be advisable to avoid separating the parent and child patient at any point.
7. Honesty in communication is critical. Be intentional to avoid coercion, perceived sales tactics, and the recommendation of treatment when it may not have value to the patient or parent.
8. Ensure that PPC is more than the simple exchange of technical, task-focused information. Be cognizant of the socioemotional component of PPC and seek to find a balance between personalism and professionalism.

Future Research

A logical next step in this field would be to document a comprehensive summary of the perspectives of orthodontists regarding holistic PPC during consultations. A recent thesis project, also from the University of Alberta, explored orthodontic provider perspectives of obtaining informed consent but did not assess the entirety of PPC including task-focused and socioemotional dialogue (84). Similarly, the patients themselves, whether as minors or adults, can provide further insight with their perspectives. A more quantitative approach may be to structure consultations in different formats and seek opinion and perspectives on each scenario.

Gaining a deeper understanding of the individual themes and sub-themes described in Chapter 3 may lead to more robust recommendations to improve PPC. Within the theme of *truthfulness*, for example, participants expressed a desire for honesty in relation to treatment recommendations. A further understanding of the factors which may make parents feel that the proposed treatment is unnecessary is warranted. Indeed, each theme, and associated sub-themes, offers an opportunity for continued research in this field. Similarly, many of the factors identified in the scoping review are supported by only one study. The nature and extent of the relationship between each factor and the various outcomes of PPC is not necessarily well understood. Ultimately, PPC has proven to be an intricate and complex process, with many individual facets amenable to future study.

Knowledge Translation

The goal of this research was to help improve PPC in orthodontic consultations for the patient, parent, and provider. Results from this study stand to be meaningful for stakeholders including orthodontists, orthodontic residents, educators, staff members, patients, and their parents. End-of-grant initiatives, such as conference presentations and lectures, are underway to enhance knowledge translation. Additionally, we are actively seeking publication for chapters 2 and 3 in reputable journals which are commonly accessible. With access to this data, orthodontic educators and policymakers may be able to develop formal guidelines, recommendations, or suggestions to improve PPC in orthodontic consultations for all parties involved.

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APPENDICES

Appendix 1: Information Sheet

Project title: "Parents' perspectives of patient-provider communication during orthodontic consultations: a qualitative description study"

Background: You are being asked to take part in a research study to help us understand communication between parents and their child's orthodontist during the treatment consultation appointment. We are doing this study to improve communication between the orthodontist and the patients' parents. You are unlikely to benefit directly from this research, but it may benefit future patients and their parents. We are recruiting people who have recently had an orthodontic consultation appointment.

Purpose: This research aims to better understand what parents think about communication with their child's orthodontist during the consultation appointment. That data will be used to help improve future orthodontic consultations. This research project is being completed as part of the requirements for my Master of Science in Orthodontics.

Study Procedures: Taking part in this research will involve a one-on-one interview with the researcher. It will be audio-recorded and is expected to last around 40 minutes. The topic will be "communication with your child's orthodontist at the consultation appointment". Questions will be prepared in advance, but the interview will be somewhat flexible. It may be completed in-person, over the telephone, or via video chat (Zoom, Google Meet, etc.).

Risks and benefits: There will be no direct benefit or rewards for taking part. We hope that this study will benefit future orthodontic patients, and their parents, by improving their communication with the orthodontist. There are no apparent risks to participating with a video chat interview. In-person interviews may have a risk of COVID-19 transmission, but government recommendations will be followed, and everybody present will wear a face covering.

Confidentiality: Your participation and interview data will be completely confidential. Identifying information will not be associated with the audio recordings of the interviews. Before the interviews are transcribed, any identifying information will be removed. All data will be kept on a secure, encrypted computer hard drive. Anonymous quotes from your interview may be included in the final report. The report may be published in an academic journal and/or presented at a lecture. The three research committee members listed above may have access to the data before any of your identifying information is removed. Data will be stored digitally for five years, as per the University of Alberta Policies, before it is destroyed.

Voluntary participation: Taking part in this research is entirely voluntary. You are free to withdraw from the study at any time. You can request that we delete your data up to two weeks after your interview, then it won't be used in the final report.

Additional information: The plan for this study has been reviewed by the Research Ethics Board at the University of Alberta. If you have questions about your rights or how research should be conducted, you can call (780) 492-2615. This office is independent of the researchers.

Appendix 2: Consent to Contact Script

A resident here is studying how we communicate with you during this consultation appointment and what you think about it. You won't be evaluating the residents or the staff, just sharing your perspective and insight about the communication *per se*.

If you would like to participate, I just need your phone number, and the researcher will contact you later today or at your convenience. He'll explain the project fully, then will want to interview you, either in-person, over the phone, or on Zoom. It will last around 40 minutes.

Are you interested in helping out with this project? The collected information will help all of us to improve how we communicate with prospective patients. We won't store your contact information if you choose not to take part.

Appendix 3: Consent Statement

I have read the information form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered. If I have additional questions, I have been told whom to contact. I agree to participate in the research study described above and will receive a copy of this consent form. I will receive a copy of this consent form after I sign it.

_____	_____
Participant's Name (printed) and Signature	Date
_____	_____
Name (printed) and Signature of Person Obtaining Consent	Date

Appendix 4: Interview Guide

Preamble

Hi, I'm Codey Pilgrim, a master's student in Orthodontics at the University of Alberta. Thanks for agreeing to this interview. As part of my thesis requirements, I will hopefully find out how patients feel about communicating with their orthodontists. The appointment where you discussed the treatment options with the orthodontist is what we're interested in. There's no benefit to you directly, but we hope it will benefit orthodontic patients in the future.

We're going to audio-record the interview, but it will be transcribed and reported completely anonymously. There are no right or wrong answers! I'm just interested in your opinion. Please avoid naming your orthodontist, their practice, or any staff members in your answers. Our goal is not to rate the orthodontists individually. Do you have any questions for me before we begin?

Questions

1. Tell me a little bit about yourself. What do you enjoy doing in your spare time?
2. Describe for me how the consultation proceeded. What was the process?
3. How would you describe that experience overall?
4. When it came to speaking with the orthodontist, what kinds of things did you talk about?
    a. What do you believe is important to discuss before starting orthodontic treatment?
    b. Alternative: If your child was getting braces tomorrow, what are something you think are important to know?
    c. Probing: What are some ways you would like to receive information?
5. What are some things that you appreciated hearing from your orthodontist?
    a. *Probing:* That's interesting. Can you tell me more?
6. What are some things you feel could have been communicated better? Was there something specific you were interested in hearing about?
    a. *Probing:* That's interesting. Can you tell me more?
7. Tell me about the importance of the amount of time spent communicating with your orthodontist.
    a. Do you think there's a balance between the amount of time you have and the amount of information you get?
    b. Do you think there's a balance between the social aspect and discussing the technical information?
8. If there was one thing you would have liked to have been different during that appointment, what would it have been? Is there a stand-out memory you'd like to share?
9. Is there anything else you'd like to talk about today?

Closing

Thank you very much for taking the time to participate in this research. I'm glad we had the chance to talk today. I really appreciate it!