Decision-making in English Clinical Commissioning groups: A mixed methods study

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Decision-making in English Clinical Commissioning Groups: A Mixed Methods Study

Mpumelelo Sibanda, Richard Breese, Ilfryn Price

Abstract

My research primarily investigated the Clinical Commissioning Groups (CCGs) in the English National Health Service (NHS) to identify factors influencing effective decision-making as perceived by General Practitioners (GPs) with formal roles in CCGs. A study by the British Medical Association (BMA) (2014) revealed that GPs at practice level felt that CCGs were developing policies that restrict efficient delivery of health care. As such, I developed a hypothesised conceptual model demonstrating factors at play in the decision-making process, which I tested using Partial Least Squares Structural Equation Modelling (PLS-SEM). Alongside, informed by the conceptual model, was the qualitative strand, with the data that I analysed under interpretative phenomenological analysis (IPA). Quantitative and qualitative data were collected simultaneously through a survey using a questionnaire in a convergent parallel mixed methods design, underpinned by a philosophical position of pragmatism. Data was collected in 2017. Usable responses comprised of 73 GPs in England.

The study results, which contribute to theory and practice, discovered that; for practice, autonomy only was not enough to ensure efficiency of the CCGs. Other aspects like Finance and GP Proportion came to the fore. For example, many concerns about CCG policies perceived as adverse were attributed to Finance, while GP Proportion was found to have a significant effect on the perceived decision-making process effectiveness. For theory, the intention behind the setting up of the CCGs, to move, effectively, from a bureaucratic model of organisational structure to a professional model (Mintzberg 1979) was found to be threatened.

Key words:

Decision-making, mixed-methods, Partial Least Squares Structural Equation Modelling, Interpretative Phenomenological Analysis

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1 Introduction

In 2014, the British Medical Association (BMA) published the results of a study which indicated that the Clinical Commissioning Groups (CCGs) in England had "failed to deliver overall improvements to patient care or involve more GPs in the running of services" (British Medical Association 2014). At launch, the CCGs were intended to be administered in a bottom-up style (Checkland et al. 2016), thereby supporting decision-making and policy formulation to be conducted at a local level. All General Practitioner (GP) Practices were, by law, required to be a member of the local CCG, thus making them be known as "member practices". Representation of member practices at CCG level was either directly or at a sub-committee level, depending on the CCG structure and size. The designated representatives were either "a GP or other health care professional, or, in some cases, the practice manager" (Naylor et al. 2013, p.12). Therefore, the various CCGs' decision-making committees were not solely made up of GPs but included other professional backgrounds. Of the different decision-making committees, this study's scope was mainly focused on the Governing Body, the highest authority where the CCG decisions are made or ratified (McDermott et al. 2015). In this model, the GPs were designed to lead, articulating the member practices' needs to the CCGs in line with the locally defined communication channels.

Studies have shown barriers to CCGs being wholly autonomous in decision-making matters to effectively meet local needs (HFMA 2017; Robertson et al. 2016). For this reason, this study's primary aim was to identify the factors influencing the perceived effective decision-making process, with the secondary aim designed to assess the formal roles occupied by the GPs in the CCGs. The term "formal roles" denotes responsibilities assumed by GPs in their respective CCGs, as McDermott et al. (2015, p.30) suggested that "asking what the role of GPs is or should be in CCGs is a complex question with as many answers as there are CCGs". A conceptual model was developed upon which the research was based and implemented using a mixed methods design.

2 Conceptual Model

The conceptual model was premised on a conceptual framework of decision-making structures and associated processes within the CCGs. Here, latent variables of factors influencing an environment conducive to a GP-led decision-making process were identified, and the associated propositions were developed. Latent variables, also known as latent constructs or unobserved variables (Lowry & Gaskin 2014; Carrascal et al. 2009; Henseler et al. 2009; Bozionelos 2003), represent concepts that cannot be measured directly but are estimated using proxies. In the interest of consistency, this paper uses the term latent variables. Latent variables make it possible to model a complete estimated causal network simultaneously in which, for instance, "the effect of A → B can be estimated while also estimating the effects of A → C and B → C, as well as the indirect effect of A on C through B" (Lowry & Gaskin 2014, p.125).

Six latent variables were established in this study: *Decision–making Process Effectiveness, Member Practice Wishes Met, Satisfaction, GP Influence, GP Proportion,* and *Higher Authority Control*. Theoretical propositions explaining the causal relationships across these latent variables were, likewise, developed accordingly. Theoretical propositions are the research hypotheses – that is, a 'high-level' version of statistical hypotheses in which "a functional statement of cause and effect (e.g. changes in X cause changes in Y; Y is a function of X)" (Lowry & Gaskin 2014, p.126-127) is used to describe the relationship.

2.1 Latent variables and theoretical propositions – how they were developed

The process of developing the latent variables and theoretical propositions was underpinned by abduction, premised on the pragmatic approach (Morgan 2007), described in Section 3. Abduction is a concept that implies "explanatory reasoning" in which a simple explanation is made to define evidence of the observed phenomenon (Magnani & Bertolotti 2017). Accordingly, using the existing evidence from the published research (HFMA 2017; Checkland et al. 2016; Robertson et al. 2016; BMA 2014), I extrapolated the best explanation of the study phenomenon, which I encapsulated in a conceptual model designed "to explain meaningful underlying patterns" (Mirza et al. 2014, p.1982) of the perceived reality in the CCGs' network of causal effects in decision-making. Of the six latent variables constituting the model, *Decision-making Process Effectiveness, Member Practice Wishes Met, Satisfaction,* and *GP Influence* were dependent variables, which means their impact was influenced by another variable linked to them using the principle of causal relationships. *GP Proportion* and *Higher Authority Control* were independent, not influenced by an external variable.

It is essential to note that in cross-sectional studies such as this, "causality … can be only speculated" (Bozionelos 2003, p.7), with longitudinal and experimental studies providing relatively stronger causal relationships rationales (Bagozzi and Yi 2012). Considering this, Bozionelos (2003, p.7) advises that "to assign causality in cross-sectional investigations ample theoretical and background knowledge of the nature of the included variables is imperative". This study fulfilled this criterion through an in-depth review of literature about the phenomenon of study, which simultaneously became the basis of abduction that enabled the formulation of the conceptual model.

2.2 Independent latent variables

GP Proportion: Studies have shown that the GPs are perceived to be relatively ineffectual in meetings than the practice managers (Holder et al. 2016; Naylor et al. 2013). As such, this question prompted the creation of latent variable *GP Proportion* based on the abductive reasoning that, if the proportion of GPs is generally higher in the Governing Body, GPs' level of influence could possibly be augmented as well. This led to the following theoretical proposition,

Proposition 1 (P1): A high proportion of GPs in the Governing Body committee will cause a difference in the level of GP influence.

Higher Authority Control: This latent variable's conception was driven by two main aspects discussed in the literature concerning the CCGs directly and implicitly. These are the authority and control that leadership and bureaucracy have (McAuley et al. 2014; Williams & Brown 2014; Mintzberg 1979). As such, it is possible that due to the "strict and prescriptive assurance regime" (Checkland et al. 2018, p.390) meted out by NHS England, the CCGs' leadership in various levels of operation could have no choice but extend the same measures to meet NHS England's requirements thus. As a result, the perceived decision-making process effectiveness along with the member practice wishes being met plus the degree of GP satisfaction about decision-making may all be impacted. For this reason, I devised the following three propositions.

Proposition 2 (P2): Higher authority control in the Governing Body committee will influence the decision-making process effectiveness.

Proposition 3 (P3): Higher authority control in the Governing Body committee will influence the member practice wishes being met.

Proposition 4 (P4): Higher authority control in the Governing Body committee will influence the degree of GP satisfaction about decision-making.

2.3 Dependent latent variables

GP Influence: Since the CCGs were designed to be clinically led (Checkland et al. 2016; United Kingdom Government 2012; NHSCC [No Date]), with the GPs specifically named to lead the system, did the custodians of this responsibility wield enough influence proportionate with the ethos underpinning the CCGs? For this reason, the latent variable named *GP Influence* was created to evaluate the impact of the GPs' influence. Three propositions were developed to this end,

Proposition 5 (P5): The level of GP influence in the Governing Body will cause a difference in the effectiveness of the decision-making process.

Proposition 6 (P6): The level of GP influence in the Governing Body will cause a difference in member practice wishes being met.

Proposition 7 (P7): A high level of GP influence in the Governing Body will impact the degree of GP satisfaction about decision-making.

Decision-making Process Effectiveness: Any action that supported efficient delivery of health care service within the decision-making process continuum (Figure 1) of the CCGs was viewed as being 'effective', something which the latent variable, *Decision-making Process Effectiveness*, was designed to estimate.

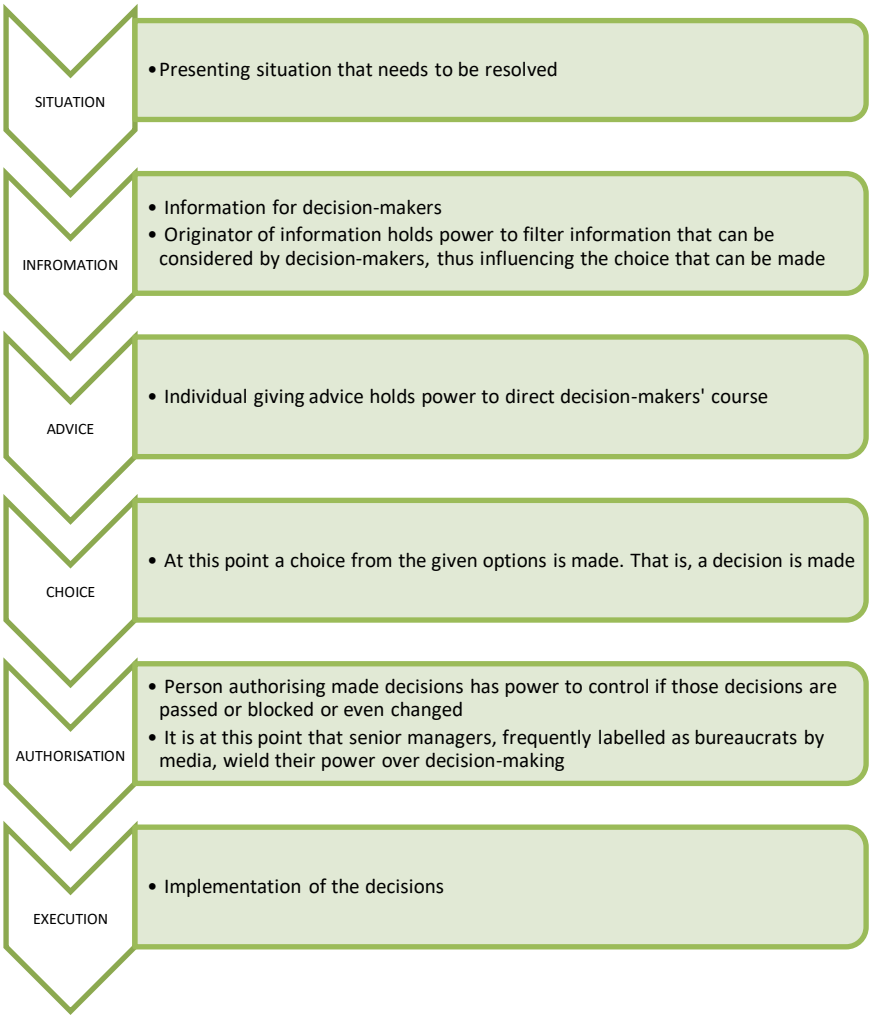

Figure 1 A continuum of control over the decision-making process (Adapted from Mintzberg 1979)

Satisfaction: Following the BMA (2014) study, the findings' general tone indicated that the GPs were not satisfied with their CCGs' decisions. As such, the current study sought to analyse GPs' satisfaction with decision-making, three years on from the BMA (2014) study.

Member Practice Wishes Met: *Member Practice Wishes Met* latent variable was considered a moderating variable between latent variables *GP Influence* and *Satisfaction* as well as *Higher Authority Control* and *Satisfaction*. Meeting practice wishes depended on the level of influence of the GPs who sat in the Governing Body where they could facilitate in getting those wishes realised. To this effect, Proposition 8 was developed.

Proposition 8 (P8): The level of GP influence and the higher authority control in the Governing Body will influence the scale of member practice wishes being met, thereby causing a difference in the degree of GP satisfaction about decision-making.

The propositions and latent variables were linked together to produce a conceptual model shown in Figure 2. The shown relationships depict that *Decision-making Process Effectiveness* is an effect of *GP Influence* and *Higher Authority Control*. On the other hand, *GP Influence* is causally determined by *GP Proportion*. *Satisfaction* is the effect of *GP Influence, Member Practice Wishes Met*, and *Higher Authority Control* while at the same time *Member Practice Wishes Met* depends on *Higher Authority Control* and *GP Influence*. *GP Proportion* and *Higher Authority Control* are exogenous latent variables, meaning that they are the causes of *GP Influence*, *Satisfaction*, and *Decision-making Process Effectiveness,* which are endogenous latent variables. Conversely, *Member Practice Wishes Met* is an intervening variable with its causality role just being on *Satisfaction*. On its own, it cannot exert that causation (Russo 2009).

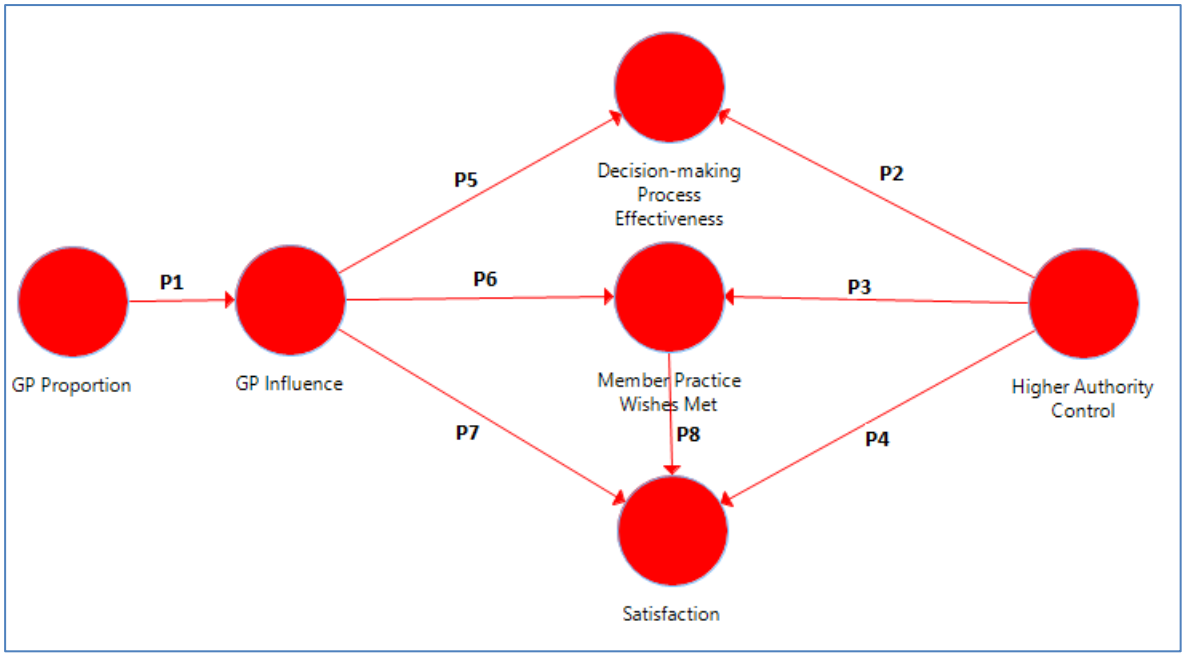

Figure 2 CCGs Decision-making Conceptual Model (Source: Author's own 2019, unpublished)

3 Research Methodology

A mixed methods methodology was adopted in this study "to develop a more complete understanding of [the phenomenon of study]" (Creswell & Plano Clark 2011, p.77) by synthesising complementary quantitative and qualitative data. The quantitative research provided a predictive framework, while the qualitative strand provided an interpretive framework. The literature discusses six types of mixed methods designs, namely – Explanatory, Exploratory, Convergent, Embedded, Transformative, and Multiphase (Creswell & Plano Clark 2011). Of these, a convergent parallel mixed methods was employed in this study using a questionnaire in a survey. This approach saves time as mixed methods designs typically take longer in data collection and analysis than other research methodologies (Creswell & Plano Clark 2011).

Academics have "little agreement … about what mixed methods research is" (Morse & Cheek 2014, p.3). For example, some see this approach as merely being a data collection technique, a view that Creswell and Plano Clark (2011) counter by explaining that, while mixed methods is focused on data collection, it is also a methodology as it incorporates a scheme for managing research. Other academics are also not convinced about mixed methods because of unconventional practices such as combining different philosophical positions in a single study (Creswell & Plano Clark 2011). In this vein, the philosophical position underpinning this study was the pragmatic approach, a variant of pragmatism, advocated by Morgan (2007) who argued that pragmatism in social science research should not be seen from the conventional sense of philosophy, as "that is the province of philosophers". That is, the standard understanding of pragmatism holds that "multiple paradigms can be used to address the research problem" (Rossman & Wilson 1985, cited in Creswell & Plano Clark 2011, p.26). By contrast, the pragmatic approach is purged of the weight of philosophical knowledge, only recognising epistemological implications at an abstract level on the acquired knowledge. To this end, for the quantitative research strand, I leaned towards post-positivism, which recognises a limitation that a researcher has in influencing the observation he or she makes (Reichardt & Rallis 1994). For the qualitative research strand, I embraced interpretive phenomenology because of the intention that I had to capture "the essence of the lived experience" (Williams & Paterson 2009, p.694) of the GPs.

The next sections describe sampling and data analysis methods used in this study.

3.1 Sampling and sample size

The research population was drawn from the GPs with formal roles in the CCGs in England. The participants were recruited through the purposive sampling technique. Determining the sample size was tricky because of the data collection method used in this study, in which quantitative and qualitative studies were contained in a single questionnaire. The traditional mixed methods studies typically fall back to the respective conventional sample size

estimation techniques for the quantitative and qualitative strands' data collection methods, which was not possible in this study. As such, I pragmatically inclined the sample size estimation towards the quantitative research premise, which was between 100 and 1000, as per Rowley (2014) recommendation. The limitation forecasted at the inception of this study was that the response rate was likely to be low because of the intense work pressures on GPs (BBC News 2015). Because of the small sample size that I was likely to achieve, the consideration that came to the fore at the sampling stage was the selection of a suitable data analysis technique. As the sample size was likely not going to be large enough for satisfactory analyses, using techniques like multiple regression to establish patterns of variance, which do not work accurately with small samples (Karimimalayer & Anuar 2012), was not feasible. I planned for PLS-SEM, a technique that accepts a small sample size to achieve acceptable statistical analyses (Lowry & Gaskin 2014; Hair et al. 2012; Henseler et al. 2009). The quandary that I faced with PLS-SEM is that there is no single agreed standard method for determining the acceptable "small" sample size, thus leaving the researcher with the question, "how small is small sample size"?

In 300 examples of PLS-SEM use, that Hair et al. (2012) reviewed, the sample size varied from 18 to 16,906. There is, nonetheless, a widely promoted "rule of thumb" instigated by Barclay et al. (1995, cited in Henseler et al. 2009) designed to guide the researchers in getting around the sample size question. It states that the minimum sample size should be either ten times the maximum number of outer model paths on a latent variable affiliated with the maximum count of indicators, or ten times the number of the maximum inner model relationships directed at a single latent variable, depending on whichever is larger (Hair et al. 2012; Henseler et al. 2009). From this rule of thumb, the minimum sample size for my study would be 40. Ultimately, the survey's response rate was 74, with 73 usable responses, which, according to Hair et al. (2012), fall within the recommended range to achieve satisfactory analyses. The concept of inner and outer models is defined in the next section of data analysis, alongside the other related details.

3.2 Data analysis

Quantitative data analysis

The data analyses were performed separately, tied to their respective strand, on quantitative and qualitative data. First, descriptive statistical analysis was done on quantitative data. This was accompanied by descriptive statistical analysis of the qualitative data, which were first quantitised and then analysed quantitatively. Quantitisation of qualitative data was the first step of mixing, a key tenet of the mixed methods methodology, performed in this study. Quantitisation of qualitative data is a recognised mixing technique 'in its own right', as advanced by Creamer (2011).

Inferential analysis where the causal hypotheses were tested using PLS-SEM was then performed on the quantitative data. Before that, the conceptual model developed in Section 2 was enhanced by adding the observed variables, thereby making it known as a PLS-SEM path model. Observed variables, also known as indicators or manifest variables (Lowry & Gaskin 2014; Henseler et al. 2009), are the actual data that has been measured from the study. The PLS-SEM path model's fitness had to be established in line with the PLS-SEM procedures, which prescribe that the outer model should be tested first followed by the inner model. The outer model is comprised of relationships between the observed variables and their connected latent variables, while the inner model is comprised of a network of relationships between the latent variables. If the outer model fails the test, the latent variables and observed variables should be rearranged, and the whole model retested, which was the case in this study. Testing of the outer model was achieved using the criteria outlined in Table 1, whereas the inner model was tested using the criteria outlined in Table 2. Testing of causal hypotheses is performed as part of the inner model testing phase.

Table 1 Criteria used to evaluate outer path models

Outer Model Type	Category Name	Feature Measured	Name of index/criterion	Level of Acceptance
Reflective measurement model	Internal reliability	Indicator interrelationship on same latent variable. Should correlate positively	Composite reliability score	≥ 0.6
Reflective measurement model	Convergent validity	Degree of indicator correlation on same latent variable	Average Variance Extracted	≥ 0.5
Reflective measurement model	Discriminant validity	Latent variable distinctiveness to prevent multicollinearity	Heterotrait-monotrait correlation coefficient	≤ 0.85
Formative measurement model	Indicator's contribution to the latent variable	Indicator relevance to the latent variable. Weights should be significant	Indicator weights	
Formative measurement model	Multicollinearity	To exclude indicator multicollinearity	Variance inflation factor (VIF)	4 – 5

Table 2 Criteria used to evaluate the inner path model

Category Name	Feature Measured	Name of index	Level of Acceptance
Endogenous latent variables' explained variance	Individually explained the amount of variance of all endogenous latent variables	R^2	0.67, 0.33, and 0.19 (substantial, moderate, and weak)
Effect size	Measures the magnitude of effect between two variables	f^2	0.02, 0.15, and 0.35 (small, medium, and large)
Prediction relevance	Assesses the inner model's capability to predict	Q^2	>0 (0.02, 0.15, 0.35) (small, medium, high)
Significance of path coefficients	Indicate the strength of relationships between latent variables	Weighted factors	-1 to +1

Following the model fitness tests, five latent variables were retained from the original conceptual model, resulting in a PLS-SEM path model shown in Figure 3. The items measured and the associated observed variables and latent variables are presented in Table 3 using the format derived from Bharati and Chaudhury (2004).

Alongside the remaining five latent variables, were the associated four causal hypotheses, namely;

(H1) Causal Hypothesis 1: A high proportion of GPs in the Governing Body committee will influence the decision-making process effectiveness.

(H2) Causal Hypothesis 2: The level of GP influence in the Governing Body will cause a difference in the effectiveness of the decision-making process.

(H3) Causal Hypothesis 3: A high level of GP influence in the Governing Body will impact the degree of GP satisfaction about decision-making.

(H4a & H4b) Causal Hypothesis 4: The level of GP influence in the Governing Body will impact the scale of member practice wishes being met, thereby causing a difference in the degree of GP satisfaction about decision-making.

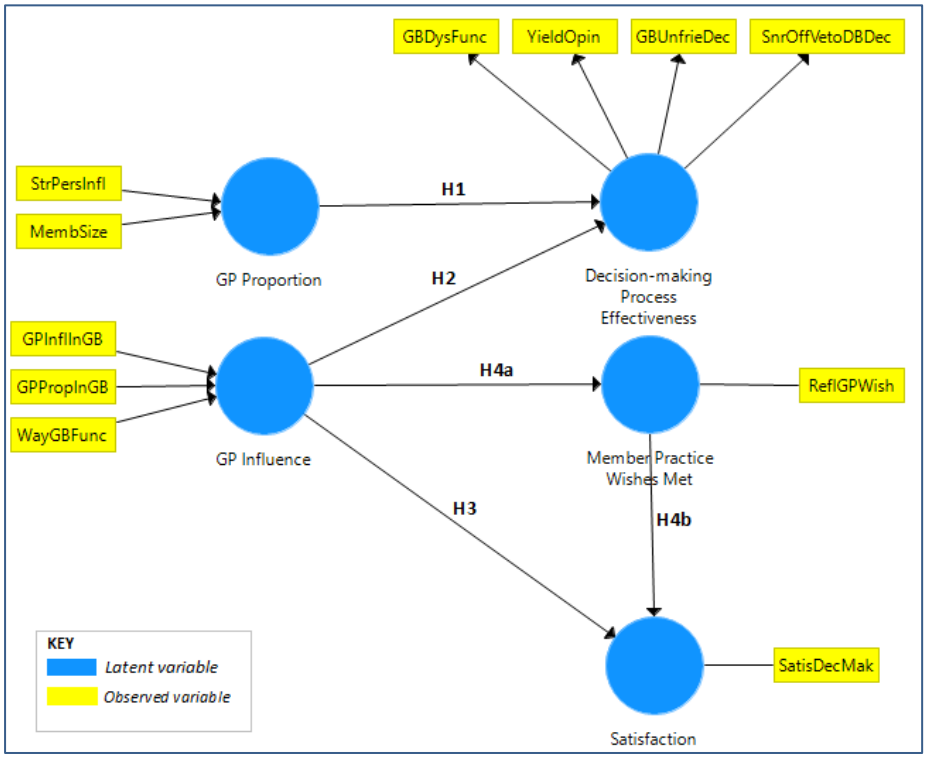

Figure 3 CCGs Final Phase PLS-SEM Path Model (Source: Author's own 2019, unpublished)

Table 3 CCGs Final Phase Path Model – Sources and Instruments List

INDEPENDENT/ DEPENDENT LATENT VARIABLE	LATENT VARIABLE NAME	INDICATOR	ITEM MEASURED
Independent	GP Proportion	MembSize	CCG Governing Body Membership Size
		StrPersInfl	Governing Body Influenced by Few Strong Personalities
Independent	GP Influence	GPInflInGB	Level of GP Influence in Your Governing Body
		GPPropInGB	The proportion of GPs In CCG Governing Body Membership
		WayGBFunc	The Way Your CCG Governing Body Functions
Dependent	Decision-making Process Effectiveness	GBDysFunc	Governing Body Is Dysfunctional
		YieldOpin	Governing Body Members Yield Opinions to Others to Avoid Contention
		GBUnfrieDec	Unfriendly Decisions
		SnrVetoDec	Senior Member or Government Official Vetoed Decisions Made by Governing Body
Dependent	Member Practice Wishes Met	ReflGPWish	Decisions Made by My CCG Reflect the Wishes of GP Practices That My CCG Serves
Dependent	Satisfaction	SatisDecMak	Level of Satisfaction About the Way Decisions Are Made at Your CCG

Qualitative data analysis

The qualitative data were analysed using interpretative phenomenological analysis (IPA). IPA was particularly appealing because of its capacity to embrace the researcher's foreknowledge about the phenomenon of study. While I mitigated the preconceived ideas and assumptions that I had about the research topic through bracketing to uphold the rigour of the study, I could not detach myself from the phenomenon of study, recognising my own experience as a health service professional (although not a GP) (McManus Holroyd 2007; Wojnar & Swanson 2007). Ultimately, in this context, the researcher interprets the lived experience of the researched through the lens of his or her (researcher) fore-structure of understanding (Tuffour 2017).

I interpreted the qualitative data using the IPA approach explained above to derive a number of key themes. At this interpretation phase, I also integrated the second step of mixing, which is merging. I merged the quantitative and qualitative data results through synthesis and comparison of the results that I obtained from the quantitative and qualitative studies. Conclusions and inferences were drawn accordingly.

4 Authentication and generalisation of research findings

The assessment criteria for authenticating the quantitative study strand in this research were validity and reliability, two methods widely discussed in the literature, which include Cassidy et al. (2011), Ajjawi and Higgs (2007), Scott and Morrison (2006), Lincoln and Guba (1989), and Bell (1999).

Arguments about generalisability and the context-bound nature of quantitative and qualitative studies' findings do not apply when a pragmatic focus is assumed (Morgan 2007). Instead, studies conducted under the pragmatic approach model are transferrable. Transference is achieved through effusive descriptions where the context of the study is painted. The context should be adequately described "such that readers can judge for themselves the applicability of the research findings to their own contexts" (Ajjawi & Higgs 2007, p.207). If the described picture is comparable to the reader's situation, the reader can "be informed by the findings" (Symon & Cassell 2012, p.207). Lessons "learned in one context" can be transferred to other contexts irrespective of the methods used to generate that knowledge as long as the underlying factors warrant transference (Morgan 2007).

5 Research findings

The hypothesis testing results showed that *GP Proportion* has a significant and positive effect on *Decision-making Process Effectiveness*. Similarly, the effect of *GP Influence* was found to be significant and positive on *Satisfaction*. In contrast, the effect of *GP Influence* on *Decision-making Process Effectiveness* was found to be insignificant. This result was also observed regarding the effect of *GP Influence* on *Member Practice Wishes Met*. Five key themes were identified from the qualitative data: financial theme, bureaucracy theme, clinical implications theme, workplace culture theme, and CCG role theme. These, complemented by the inferential analysis results, suggested that structure alone is not enough to deliver decision-making effectiveness to the CCGs. The intention behind the setting up of the CCGs, to move, effectively, from a bureaucratic model of organisational structure to a professional model (Mintzberg 1979), based on the input of GPs, was found to be under threat.

6 Conclusion

This study's primary research aim was to identify the factors that influence the effective decision-making process in the CCGs as perceived by the GPs, while the secondary aim was to investigate the roles that the GPs occupied in their respective CCGs. A convergent parallel mixed methods methodology was used to achieve the research aims, where the quantitative strand provided a predictive framework while the qualitative strand provided an interpretive framework. A philosophical position of pragmatism considered through the lens of Morgan (2007), who named his technique the pragmatic approach, underpinned the entire research design. A hypothesised conceptual model demonstrating factors at play in the decision-making process using a network of causal effects across different latent variables extrapolated from the literature was developed to contextualise the study. The data was collected using a survey for both strands, quantitative and qualitative. Analysis of quantitative data, in which the conceptual model was tested, was achieved using Partial Least Squares Structural Equation Modelling (PLS-SEM), whereas the qualitative data were analysed under the guidance of the interpretative phenomenological analysis (IPA) method. The study results suggested that autonomy in the CCGs was being eroded.

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