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Associations between structures, processes and outcomes in inter-municipal cooperation in out-of-hours services in Norway: A survey study

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A B S T R A C T

Inter-municipal cooperation (IMC) has gained widespread recognition as a beneficial strategy for improving efficiency and quality in the provision of out-of-hours emergency care services (OOH services). Little attention, however, has been given to the additional costs of cooperation and the relational processes through which benefits and costs are likely to result. Based on survey data from 266 (77%) Norwegian municipalities involved in IMC in OOH services in 2015, this study aimed to investigate how the structure (governance form, complexity and stability) and quality (trust and consensus) of cooperation processes interact to influence the perceived outcomes (benefits and costs) of IMC in OOH services. Using Structural equation modeling, we found trust and consensus fully mediated the association between the structure and outcomes of IMC. More specifically, the results suggest that cooperation structures characterized by centralized governance, stability over time, and reduced complexity were likely to enhance the benefits and reduce the costs of IMC through trust and consensus.

1. Introduction

Throughout Europe, the provision of out-of-hours emergency care services (OOH services) are increasingly being organized through various forms of cooperative arrangements that are expected to help service providers cope with steadily rising pressure in terms of increased efficiency and service quality (Grol et al., 2006; Huibers et al., 2009; Huibers et al., 2014; Leibowitz et al., 2003; Leutgeb et al., 2014; Philips et al., 2010; Smits et al., 2012). Norway is no exception to these developments. In Norway, 428 municipalities are by law responsible for providing primary health care to all inhabitants, including OOH services. During the last decades, however, the organisation of OOH services in Norway has changed from municipal-based to larger inter-municipal cooperation (IMC) (Morken et al., 2016; Norwegian Ministry of Health and Care Services (2015). As many as 80% of all Norwegian municipalities provided these types of services through voluntary IMC in 2015 (Norwegian Ministry of Health and Care Services, 2015).

Given this widespread recognition of scaling up OOH services through cooperation, it seems that most of the literature has primarily been focusing on assessing the expected *benefits*, such as reduced service costs (Broekman et al., 2017; Brogan et al., 1998; Grol et al., 2006; Hansen and Munck, 1998; Smits et al., 2017), enhanced service quality (Giesen et al., 2011; Hansen and Munck, 1998; Shipman et al., 2000; Smits et al., 2012; Tranberg et al., 2018) and reduced workloads for GPs (Giesen et al., 2011; Grol et al., 2006; van Uden and Crebolder, 2004). Although important, we argue, this literature tends to ignore some important aspects that limit our understanding of the complex and dynamic nature of this type of cooperation and how it can be improved. First, it does not account for the *additional costs* that are likely to result from providing OOH services through cooperation rather than individually, such as the increased time and resources needed to reach joint decisions and coordinate joint activities (Pettigrew et al., 2019). Second, by focusing solely on end products and outcomes, it leaves the relational *process of cooperation* a "black box", thus neglecting to consider how benefits and costs may depend on the quality of cooperation processes (trust and consensus) and how they are structured (governance form, complexity and stability) (Provan and Sydow, 2008).

From a practical perspective, we argue that just as important as assessing "what" outcomes are achieved from cooperation is asking *"how"* they are achieved. The purpose of this study was to provide health managers, practitioners and policymakers with a better understanding of the complex nature of IMC in OOH services, asking *how the structure and quality of cooperation processes interact to influence the perceived benefits and costs of being involved in IMC in OOH services*.

2. Theoretical framework and hypotheses

Theory and research on inter-organizational relations (IOR) provides a valuable starting point from which to analyze the above research question, and has formed the basis for two frameworks

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Fig. 1. Conceptual model of the association between the structure, process and outcomes of IMC in OOH services.

specifically developed for studying cooperation among health-care organizations (D'Amour et al., 2008; Lasker et al., 2001). IOR specifically turns the focus towards the factors that enable and constrain "relations between and among organizations that are pursuing a mutual interest while also remaining independent and autonomous, thus retaining separate interests" (Cropper et al., 2009, p. 8). Several such factors have been identified over the years, and Provan and Sydow (2008) suggest categorizing these according to three interactive dimensions that are sequential in time: structures, processes and outcomes. Drawing from parts of this literature, we developed a conceptual model for analyzing the complex and dynamic nature of IMC in OOH services with the quality of cooperation processes (trust and consensus) included as a mediator between the structure and outcomes of IMC (Fig. 1).

2.1. Outcomes of cooperation

When evaluating beneficial outcomes of IOR involvement, Provan and Sydow (2008) suggest considering three types of outcomes that also reflect the expected benefits from providing OOH services through cooperation (Grol et al., 2006; Huibers et al., 2009, 2014; Leibowitz et al., 2003; Leutgeb et al., 2014; Philips et al., 2010; Smits et al., 2012). The first type, *financial performance*, refers to the potential for reducing service costs resulting from economies of scale and efficiency gains. The second type, *non-financial performance*, includes increased service quality and a stronger workforce, as cooperation is expected to facilitate joint investment and resource exchanges, reduce workloads and ease recruitment of GPs, allow GPs to work in larger teams, etc. Finally, *innovation and learning* may also be obtained from cooperation because cooperation allows for spreading best practices, shared training programs, peer-support, etc.

However, even though cooperation may result in a wide range of beneficial outcomes, bringing together several legally autonomous organizations with potentially different interests and preferences usually comes with a cost (Cropper et al., 2009; D'Amour et al., 2008; Hulst and Montfort, 2007). In their review study, Pettigrew et al. (2019) identified several potential costs that may result from providing health-care services through cooperation rather than individually, including increased *time and resources* spent on collaborative decision-making processes and coordinating joint activities. Thus, we believe, as do Provan and Sydow (2008, p. 707), that the "costs of establishing and maintaining an IOR must be considered in any evaluation effort and balanced carefully against more positive evaluation criteria", and moreover, that minimizing these costs may be just as effective as providing additional benefits (Lasker et al., 2001).

2.2. The quality and outcomes of cooperation

The term cooperation processes refers to those actions and activities that are likely to result in effective outcomes, and the idea that the quality of these processes may be compromised due to lack of trust and consensus is central to IOR (Benson, 1975; D'Amour et al., 2008; Head, 2008; Lasker et al., 2001; Levine and White, 1961; Popp et al., 2014; Provan and Sydow, 2008; Tavares and Feiock, 2014). This is also a key concern in two frameworks developed for analyzing cooperation between health-care organizations, although these frameworks emphasize somewhat different aspects of the two concepts. D'Amour et al. (2008) point to lack of *competence trust*, or trust in the other participants' competence to assume their responsibilities and absence of *shared goals* as important obstacles to success. Lasker et al. (2001), on their side, emphasize lack of *contractual trust*, or trust in the other participants to follow through on their contractual obligations and responsibilities and an overall high level of *conflict,* as important barriers to success. In addition, there is a need to consider disagreement about the distribution of costs *(fairness)* as a potential obstacle to effective cooperation (D'Amour et al., 2008; Tavares and Feiock, 2014).

What all of these different aspects of trust and consensus have in common is that they are likely to increase the perceived risk and uncertainty among the participants about whether the relational process of cooperation will be satisfactory (relational risk) and ultimately whether the cooperation will perform as expected (performance risk) (Das and Teng, 2001). These risks are expected to increase the time and resources needed to make decisions and coordinate and monitor activities, as well as making the participants less willing to make the necessary investments and resource exchanges to produce beneficial outcomes (Edelenbos and Klijn, 2007; Head, 2008; Korthagen and Klijn, 2014; Sako, 2006). Based on these assumptions, we propose the following hypothesis:

H1. Trust will be positively related to benefits and negatively to costs.

H2. Consensus will be positively related to benefits and negatively to costs.

2.3. The structure, quality and outcomes of cooperation

The term "structure" has been used to describe a variety of properties of IOR, and Provan and Sydow (2008, p. 697) note that "structural indicators of IORs are those that focus on the connections between organizations", including the governance, complexity and stability of these connections. What they all have in common, however, is that they are expected to have the potential to influence the quality of cooperation processes and ultimately the outcomes of cooperation (Cropper et al., 2009; Provan and Sydow, 2008). Our basic assumption will therefore be that the relationship between these structural factors and the final outcomes of IMC will be indirect and mediated by trust and consensus between the participants.

Complexity refers to the number of organizations involved in the cooperation process (Van de Ven, Delbecq and Koenig Jr, 1976). As the number of participants increases, so does heterogeneity and the number of potential relationships that must be coordinated and integrated into joint action, thus making it harder to reach consensus and maintaining the dense interaction needed to build trusting relationships (Milward and Provan, 2003; Provan and Kenis, 2007; Van de Ven et al., 1976). By virtue of undermining the quality of the cooperation processes in this way, we expect complexity to increase the costs of cooperation and making the achievement beneficial outcome more difficult. *Stability* refers in this study to the overall maturity of the cooperation (Jacobsen, 2014; Milward and Provan, 2000) and is an important condition for generating the predictability and familiarity needed to develop trust and consensus among participants (Mandell and Keast, 2008), thus having the potential to reduce the costs and increase the benefits of cooperation. The more complex concept of *governance* "involves the use of institutions and structures of authority and collaboration to allocate resources and to coordinate and control joint actions" (Provan and Kenis, 2007, p. 231). Governance constitutes an important part of the analytical frameworks of D'Amour et al. (2008) and Lasker et al. (2001). Both argue for the importance of having some central authorities to provide a clear direction, clarify expectations and responsibilities and

play a strategic role in coordinating collaborative processes in health care. From a purely managerial perspective, the use of more centralized governance mechanisms may thus contribute to improving the co-operation processes and subsequent outcomes. Findings to support this view are found in several studies of inter-organizational collaboration within the context of health care (Pettigrew et al., 2019; Provan and Milward, 2010; Sheaff et al., 2015; Sheaff et al., 2014).

Given the great variation in Norwegian IMC in OOH services with regard to the number of participants involved, their stability and their governance form (Morken et al., 2016), we hypothesize that:

H3. Complexity will be negatively related to benefits and positively to costs through trust and consensus.

H4. Stability will be positively related to benefits and negatively to costs through trust and consensus.

H5. Centralized forms of governance will be positively related to benefits and negatively to costs through trust and consensus.

3. Methods and materials

3.1. Study design and data collection

This is a cross-sectional study based on survey data obtained from 266 Norwegian municipalities involved in IMC in OOH services, conducted between October 2015 and January 2016 and approved by the Norwegian Centre for Research Data (project number 43163).

The 28th of October 2015, we invited the top health manager in all 428 Norwegian municipalities to participate in an extensive net-based survey concerning their municipality's involvement in and experiences with IMC in five different types of health services. The data used in this study were obtained from part two of this survey that dealt specifically with IMC involvement in OOH services. After three reminders, we received responses from 288 Norwegian municipalities participating in IMC in OOH services in 2016 (Morken et al., 2016). Twenty cases were deleted from the dataset due to a large amount of missing data and two additional cases due to duplication, thus leaving us with a total sample of 266 municipalities, representing 77% of all Norwegian municipalities taking part in IMC in OOH services in 2016 (Morken et al., 2016) (Fig. 2)

3.2. Questionnaire

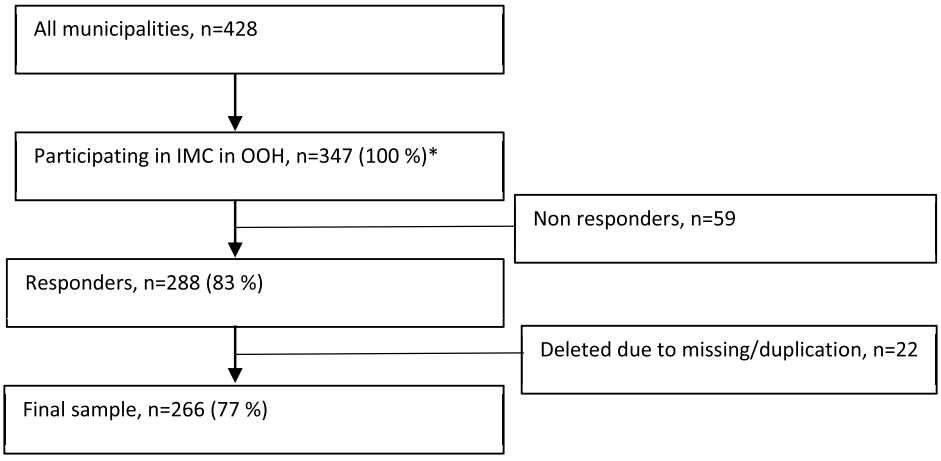
The content of the questionnaire was based on core concepts and questions derived from earlier studies on IMC and frameworks specifically developed for analyzing inter-organizational and inter-professional cooperation within the context of health care (Cropper et al., 2009; D'Amour et al., 2008; Jacobsen, 2014; Provan and Sydow, 2008). The questionnaire consisted of three main sections reflecting the dimensions in our conceptual model. Three items concerned the structure of the IMC (number of participants, governance form and stability), six items concerned the process of the IMC (trust and consensus), and six concerned the outcomes (benefits and costs). The questionnaire was pre-tested on a small sample of representatives for the target group of the study, and only minor adjustments were done.

3.3. Study setting

This study was conducted within a Norwegian health-care context, reflecting a decentralized and publicly funded Scandinavian welfare model based on core values of universalism and equality where all municipalities are assigned the same set of legislation, statutory tasks, and financing system (Leknes et al., 2013). Health-care arrangements in Norway represent a division of responsibility between two political-administrative levels where the state is responsible for providing specialist health-care services, and the local municipalities are responsible for providing primary health-care services, including OOH services.

The setting was Norwegian municipalities voluntarily taking part in formalized IMC set up between two or more municipalities to provide statutory OOH services to their inhabitants when the GP's office is closed (usually from 3 p.m. to 8 a.m. on weekdays and 24 h during the weekend). More specifically, this responsibility includes (1) treating acute medical conditions where the patient does not need hospital treatment, (2) diagnosing medical conditions requiring referral or hospitalization and channelling these patients to the appropriate level of treatment, and (3) diagnosing, providing primary treatment for, and stabilizing medical conditions that are acutely life-threatening and that require rapid hospitalization (Norwegian Ministry of Health and Care Services, 1997). These IMCs are staffed with GPs working in the participating municipalities on a rota basis, who are obliged to take part in OOH duties (Norwegian Ministry of Health and Care Services, 2012), sometimes together with additional auxiliary professionals. (Norwegian Ministry of Health and Care Services, 2015).

According to Morken et al. (2016), there were 101 unique co-operative arrangements providing OOH services in 2016, which varied in terms of their size and organizational form. Apart from simple *contractual agreements* without any governance arrangement established to coordinate joint actions, the Norwegian legal framework allows for various ways of organizing and governing these types of IMC arrangements. The most common way of organizing IMC in OOH services in



* *Morken et.al. (2016)*

Fig. 2. Participant flow chart.

Table 1
Descriptive statistics and correlations.

Variables	Mean (SD)	Min	Max	1	2	3	4	5	6	7	8
1. Benefits	3.85 (0.76)	1	5	1							
2. Costs	2.59 (1.12)	1	5	-.23**	1						
3. Trust	4.06 (0.57)	2.3	5	.26**	-.44**	1					
4. Consensus	4.44 (0.83)	1	5	.30**	-.35**	.41**	1				
5. Complexity of the IMC	5.04 (2.69)	2	15	-.14*	.12	-.14*	-.11	1			
6. Stability of the IMC	11.37 (4.98)	2	23	.06	-.11	.14*	.02	-.07	1		
7. Governed by a host	0.56 (0.49)	0	1	.11	-.00	.04	.07	.13*	-.07	1	
8. Governed by a company	0.11 (0.31)	0	1	-.06	.04	.01	.06	.23**	-.06	-.39**	1
9. Governed by a board or a simple contract	0.33 (0.47)	0	1	-.08	-.03	-.05	-.11	-.29**	.11	-.80**	-.24**

Note: **p < .01; *p < .05, N = 266.

Norway is to centralize the operational and administrative governance responsibility to one of the participating municipalities, which acts as a *host municipality* (based on the Law on Local Government Act §28b), or to an external and legally independent *inter-municipal company* with unlimited liability and its own administration (based on the Law on Inter-Municipal Companies). There are, however, also more decentralized and less formalized forms of IMC in OOH services in use such as *joint boards* (based on the Local Government Act §27) in which all the participating municipalities share the responsibility for governing the IMC.

3.4. Statistical methods

Structural equation modeling (SEM) in AMOS (SPSS) was used to analyze the data. SEM is particularly well suited to analyzing complex and multifaceted constructs and concepts like many of thoseincluded in our analysis (trust, consensus, outcomes and costs). Furthermore, SEM also lets us analyze complex "systems" of relationships as it allows several dependent and intermediate variables in the analysis simultaneously, accounting for both direct and indirect effects. It also allows us to estimate *model fit*, which indicates the extent to which our model fits the data used in the analysis rather than just how well the predictors explain the dependent or endogenous variables (Tabachnick and Fidell, 2007). Prior to the SEM, the validity of the constructs and fit of the measurement model were examined by principal component analysis (PCA), confirmatory factor analysis (CFA), and internal consistency (Cronbach's alpha). Little's MCAR test was used for missing value analysis, and a bootstrapping analysis was performed to account for non-normal data. Harman's single-factor test was conducted to account for common method bias.

3.5. Variables and measures

3.5.1. Dependent and intermediate variables

As mentioned, there are likely to be several types of outcomes involved in IMC in OOH services, some of which are difficult to assess through single and objective performance measures. We therefore apply composite outcome-measures based on multiple indicators as perceived by local health managers representing the organizations involved in the cooperation (Kenis and Provan, 2009; Mandell and Keast, 2008; Provan and Sydow, 2008). Our dependent outcome variables (benefits and costs) and intermediate process variables (trust and consensus) were based on a total of 12 items asking respondents to indicate on a five-point Likert scale the extent of or agreement on different aspects of their IMC involvement (ranging from 1, "to a very little extent"/"totally disagree," to 5, "to a very large extent"/"totally agree").

Our measure of *benefits* was based on four items in which respondents were asked to indicate the extent to which their involvement in IMC in OOH services had contributed to (1) increased service quality, (2) increased professional "robustness", (3) increased learning and innovation, and (4) reduced service costs and more efficient use of resources. The *costs* of IMC were based on two items asking respondents to what extent they agreed that their involvement in IMC in OOH services had resulted in (1) more time-consuming and demanding decision-making processes, and (2) more time-consuming activities (writing reports, attending meetings, traveling, etc.). *Trust* was measured based on three items asking the respondents to what extent they trusted the other participants to (1) have the necessary competence and resources to follow through on their tasks and commitments, (2) loyally follow through on their contractual obligations, and (3) not withdraw from the cooperation if any conflicts should occur. *Consensus* was measured based on three items asking respondents to what extent they agreed to the following (1) that the participants share the same goals, (2) that the participants agree on the distribution of costs, and (3) that the level of conflict is low.

3.5.2. Independent variables

Our independent variables (complexity, stability and governance form) were measured at the cooperation level. *Complexity* was measured by the number of participants in each unique IMC. *Stability* was measured by calculating the average number of years that the municipalities had been part of each unique IMC. *Governance form* was measured by asking respondents to tick from a list the organizational form and legal superstructure that were used for the specific IMC. Centralized forms of governance were defined as IMC arrangements where the administrative governance responsibility was delegated to either a host municipality or an inter-municipal company. These two forms were compared to the more decentralized forms of IMC governed by a joint board or based on a simple written agreement without any legally defined administrative governance entity (reference category).

In Table 1, below, we present the descriptive statistics of the dependent, intermediate and independent variables included in the analysis and the correlations between these variables.

3.5.3. Reliability and validity

To test the structural validity of the dependent and intermediate variables, i.e. to make sure that the 12 items included in our analysis tapped into different dimensions, we conducted a principal component analysis (PCA) using direct oblimin rotation. Prior to the PCA, we assessed the suitability of data for analysis, finding correlation coefficients above 0.3 among the 12 items, a Kaiser-Meyer-Olkin value of 0.79 and a p-value < .05 in a Bartlett's test of sphericity. We extracted four components and found all items loading as theoretically expected (Table 2), explaining 68% of the total variance. Furthermore, the results showed high factor loadings above 0.50, demonstrating convergent validity, and no high cross-loadings, indicating divergent validity. These four dimensions were also checked for internal consistency through calculation of Cronbach's alpha coefficients, and all showed values above the widely accepted cut-off value of 0.7, except "trust" (0.695) (Table 2). We also performed a confirmatory factor analysis (CFA) in AMOS (SPSS) to test the fit of the measurement model of latent factors with our data. The results of the CFA showed that the overall fit

Table 2
Principal component analysis and internal consistency of items measuring perceived benefits, costs, trust and consensus in IMC in OOH services.

Items (abbreviations)	Benefits	Costs	Trust	Consensus
Increased service quality (QUA)	**.851**	-.078	.006	.004
Increased professional "robustness" (PRO)	**.844**	-.021	-.126	.087
Increased learning and innovation (LEA)	**.804**	.199	.136	-.067
Reduced service costs and more effective use of resources (EFF)	**.605**	-.141	-.001	.025
More time-consuming activities (TIM)	.017	**.903**	-.057	.080
More demanding decision-making processes (DEC)	-.069	**.784**	-.047	-.082
Have sufficient resources (RES)	.038	-.155	**.714**	.153
Will follow through with contractual obligations (CON)	-.040	-.058	**.756**	.205
Will not withdraw if conflict (WIT)	.022	.028	**.774**	-.121
Consensus on goals (GOA)	.042	.078	.018	**.845**
Consensus on the distribution of costs (DIS)	.021	-.129	-.030	**.801**
Low level of conflict (CON)	-.018	.041	.057	**.759**
Cronbach's Alpha	**.778**	**.711**	**.695**	**.739**

of our measurement model was good (GFI = 0.969, CFI = 0.992, RMSEA = 0.026, PCLOSE = .947).

3.5.4. Missing values and common method bias

After making sure that the *missing values* in the dataset were missing at random (Little's MCAR test p > .05), we replaced these with the series mean, except in the case of our independent variables. Our independent variables were measured on a cooperation level, where missing values were replaced with the group mean (in the case of stability and complexity) or the same value (in the case of governance form) as the municipalities belonging to the same unique IMC (Tabachnick and Fidell, 2007). To account for non-normal data, we performed a *bootstrapping* analysis to estimate the potential effect of the sample size and thus how stable or good our sample statistics are as an estimate of the population parameter. The results from the bootstrapping analysis showed that the results were consistent across 500, 1000, and 5000 bootstrap samples, with a non-significant Bollen-Stine p-value (p > .05), indicating that our sample's values were not significantly different from those of a larger sample (Bollen and Stine, 1992). One limitation is, however, that our data are self-reported and based on the same source, namely a single application of a questionnaire with health care managers as respondents. To account for *common method bias*, or variance that is due to the measurement method rather than the constructs themselves (Podsakoff et al., 2003), we performed a Harman's single-factor test, in which all study indicators were inserted in a principal component analysis (unrotated). The result showed that no one factor accounted for the majority of the explained variance (i.e. not more than 32%), indicating that common method bias does not appear to be a concern in this study.

4. Results

After testing several different structural SEM models, we ended up with the best fitting model as displayed in Fig. 3, below, showing excellent model fit (GFI = 0.952, CFI = 0.986, PCLOSE = .991, and RMSEA = 0.026). The results of our SEM analysis are displayed in Fig. 3, which shows standardized regression coefficients (beta values) on the arrows; the bracketed values in the boxes indicate the explained variance (R^2) Fig. 3.

SEM also allowed us to test the indirect effects of our exogenous variables (stability, complexity, governance form) on the perceived benefits and costs by performing a bias-corrected bootstrap method in AMOS, requesting 2000 bootstrap samples with a bias-corrected confidence interval of 0.95. These indirect effects are shown in Table 3.

Turning to our hypotheses, it appears that most are supported by the data. Looking first at the relationship between the quality of the cooperation processes and the perceived outcomes, the overall results from our analysis suggest that the level of trust and consensus among the participants seems to be crucial in determining the perceived outcomes of IMC in OOH services. *Trust* showed a positive relationship to perceived benefits and a strong negative relationship to costs (supporting H1). Although *consensus* was found to be positively related to benefits, no direct relationship was found to costs (partly supporting H2). Rather, consensus seems to have a strong negative indirect effect on costs through trust as indicated in Table 3. Not surprisingly, we found consensus to have a strong positive relationship to trust.

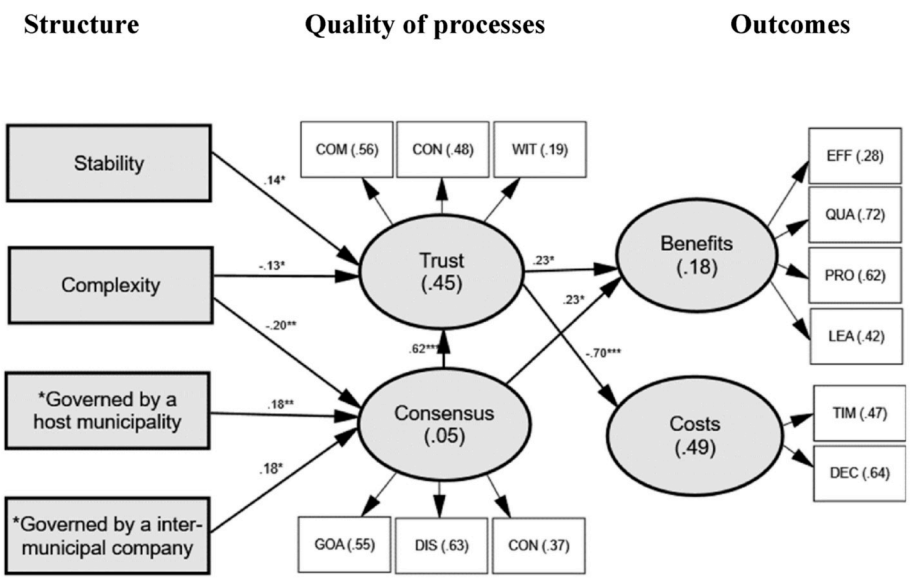
Focusing now on the relationship between the structure and outcomes of cooperation, the results from this study suggests that this relationship seems to be fully mediated by trust and consensus. As indicated in Table 3, we found *structural complexity* to be negatively related to benefits and positively to costs through trust and consensus (supporting H3). Although we found a negative and indirect relationship between *stability* and costs through trust as expected, we found no relationship to benefits (partly supporting H4). Compared to more decentralized *forms of governance* (reference), the two centralized forms (host municipality or company) showed a moderate, but still significant, positive relationship to benefits and negative to costs through trust and consensus (supporting H5).

5. Discussion

Based on what we believe to be some of the limitations in the literature on inter-organizational cooperation in OOH services, this study aimed to investigate *how the structure and quality of cooperation processes interact to influence the perceived benefits and costs associated with IMC in OOH services*. The results indicated that the quality of cooperation processes seem to play a key role in improving the outcomes of IMC in OOH services and acting as a full mediator of the relationship between the structure and outcomes of IMC. More specifically we find cooperation structures characterized by centralized governance, reduced complexity and increased stability over time to be indirectly related to enhanced benefits and/or reduced costs through trust and consensus.

The important role played by the quality of cooperation processes found in this study lends strong support to the idea that trust and consensus are likely to reduce the time and resources needed to make decisions and coordinate joint activities, as well as increasing participants' willingness to make the necessary investments to produce beneficial outcomes (Edelenbos and Klijn, 2007; Head, 2008; Korthagen and Klijn, 2014; Sako, 2006). The practical implication of these findings suggests that active efforts to build trust and consensus in IMC in OOH services may pay off in terms of reduced costs and enhanced benefits. This is also one of the key messages of Pettigrew et al. (2019) in their recommendations for improving outcomes from scaling up GP services through cooperation.

Trust and consensus seems to be particularly important for reducing the perceived costs associated with IMC in OOH services. To understand why, we believe that we must consider the risk and uncertainty inherent in IMC in OOH services (Tjerbo and Skinner, 2016), due to the consequences of unsatisfactory cooperation (relational risk) and unmet objectives (performance risk) (Das and Teng, 2001). There may be several reasons for this. First, OOH services could be described as a type of collective public service in which there is a need for *fail-safe service delivery* (Warner, 2011) because the consequences of a potential breakdown or failure could be particularly harmful as it would affect many people in need of acute medical treatment. A second and related argument is that IMC in OOH services requires participants to make *asset-specific investments* (medical technology, equipment, infrastructure, personnel, etc.) that may not be easy to deploy for alternative uses or to attain separately if the cooperation were to fail or breakdown (Tjerbo and Skinner, 2016). Finally, it could also be argued that OOH



Note: Standardized beta values (p<.05; ** p<.01; *** p<.001), and only statistically significant relationships (p<.05) are shown. * Governance forms based on a joint board or a simple written contract without any legally defined administrative governance entity are chosen as the reference category.*

Fig. 3. Results of SEM analysis showing the associations between structures, processes, and outcomes of IMC in OOH services (N = 266).

Table 3
Indirect effects.

	Trust	Benefits	Costs
Stability		.032	-.094*
Complexity	-.125**	-.107**	.181**
Governed by a host municipality	.115*	.069*	-.080*
Governed by a company	.112*	.068*	-.078*
Consensus		.151	-.434**

*Note: Standardized beta values (*p < .05; **p < .01).*

services represent a type of service in which the *measurement* of outcomes may be difficult (Tjerbo and Skinner, 2016), something that is likely to increase the risk and uncertainty associated with cooperation.

Given that the quality of cooperation processes appears to play such a critical role in enhancing the benefits and reducing the costs of IMC in OOH services, it is important to ask what structures may help to improve these processes and the subsequent outcomes. The results from this study provide some suggestions.

First, our findings indicate that reducing *complexity* by limiting the number of municipalities involved in IMC in OOH services may help to improve the quality of cooperation processes and their outcomes. These findings support the assumption that reaching the trust and consensus needed to increase benefits and reducing the costs of cooperation will be easier when there are fewer organizations to coordinate and integrate into joint action. (Milward and Provan, 2003; Provan and Sydow, 2008; Van de Ven et al., 1976). This explanation also seems reasonable given the great variation in the number of participants in IMC in OOH services, ranging from dyads of municipalities to more complex networks consisting of a large number of participants (Morken et al., 2016). Second, the negative relationship found between the *stability* of the cooperative arrangements and costs flowing through trust found in this study suggests that building the trust necessary to reduce costs is something that develops over time. This finding may reflect the fact that as IMC in OOH services is sustained over time, participants will be better able to consider other participants' track record of carrying out tasks and duties in the past, thus making their behaviour and actions more predictable in the future (McAllister, 1995). In an early phase of cooperation, this type of track record may be absent, leading to more uncertainty and less trust, something that ultimately will increase the time and effort needed to take decisions and coordinate the cooperation The lack of relationship between stability and consensus, may be due to the fact that most of the IMC arrangements investigated in the study had already gone through the critical initial phase of negotiating an agreement and dealing with conflicts (Mandell and Keast, 2008).

Turning to the last structural variable, *governance*, our findings suggest that centralizing the governance responsibility to a host municipality or an inter-municipal company helps the participants build the consensus and trust needed to enhance the benefits and reduce the costs of cooperation. Given the relational and performance risks involved in IMC in OOH services, we believe that these results support the assertion that "governance structures which attenuate opportunism and otherwise infuse confidence are evidently needed" (Williamson, 1979, p. 242). Similar concerns have also been raised by the Norwegian Ministry of Health and Care Services, 2015, which recommends that IMC in OOH services be set up with a centralized and strong professional and administrative body that defines the division of responsibilities and makes sure that participants are following up on agreements (e.g., the distribution of resources, internal control routines, conflict management, etc.). Moreover, in a recent evaluation of the legal framework regulating IMC in Norway, one of the recommendations was that the least regulated and centralized forms of IMC (i.e., based on §27 with a common board or based on a simple written contract) be replaced by new forms of IMC embedded within a more regulated legal framework to reduce uncertainty and disagreement between participants (Norwegian Ministry of Local Government and Modernization, 2016). An important notion in this regard, however, is that this largely

reflects a managerial perspective on IMC, a perspective that typically values centralization as a tool for enhanced control and efficiency. The recommendation of using more centralized governance forms would not necessarily hold if we were to focus on other types of values and outcomes such as involvement, interaction and flexibility.

The results from this study also suggest that efforts to build consensus on central issues related to the goals of the cooperation, as well as the distribution of costs, will have a major impact on the level of trust between the participants.

5.1. Limitations

This study has some important limitations. First of all, in spite of the qualitative and subjective nature of some of the concepts and factors included in this study, the results is purely based on quantification of survey data obtained from local health managers on items derived from previous theory and research. Although valuable, this approach may leave us with a somewhat narrow and unnuanced picture of the complex phenomenon of IMC in OOH services. To gain a more in-depth and nuanced understanding of IMC, future studies of may therefore benefit greatly from triangulation of different methods and sources of data (qualitative and quantitative) and obtained from different levels of analysis (individual, organizational, network). A mixed method approach, using in-depth interviews or focus group discussions prior to the development of the survey, would be particularly valuable as it may help to "ensure construct and item applicability for respondents and provide insights for interpreting survey results" (Human and Provan, 1997, p. 373). Finally, this study is based on cross-sectional data collected at a single point in time focusing on IMC (Arntsen et al., 2018) within a specific service area in the Norwegian context, and we must therefore be careful about generalizing as the results cannot automatically be assumed to hold for IMC in other types of services or geographical contexts, or at other points in time. Future studies on IMC should consider using longitudinal data collected at multiple points in time, allowing for a more thorough analysis of how structures, processes and outcomes develop over time.

6. Conclusion

In an effort to address what we believe to be some of the limitations in the literature on inter-organizational cooperation in health services, this study set out to investigate how the structure and quality of cooperation processes interact to influence the perceived benefits and costs of being involved in IMC in OOH services. Based on the results from this study, we conclude that the structure and quality of cooperation processes indeed seem to interact to influence the perceived benefits and costs of involvement in IMC in OOH services. More specifically, we found that increased levels of trust and consensus between participants were likely to enhance the perceived benefits and reduce the costs of IMC involvement. Moreover, we found that adopting more centralized forms of governance, limiting the number of participants, and sustaining the cooperation over time helped the participants building the trust and consensus needed to enhance benefits and reduce costs of IMC involvement. These results help shed light on the relational process, the "black box", of IMC in OOH services and demonstrates the need to go beyond simple assessments of end outcomes to consider the internal structure and process through which benefits and costs are likely to result. We believe that our findings provide local health managers, practitioners and policymakers with some important insights about the complex and dynamic nature of this type of cooperation, as well as ideas for how to improve the processes and subsequent outcomes of IMC in OOH services.

Abbreviations

GP: General practitioner; IMC: Inter-municipal cooperation; OOH services: out-of-hours services; SEM: Structural equation modeling; IOR: Inter organizational relations.

Authors' contributions

BA was responsible for designing the study, data collection, analysis and interpretation of data, and writing the manuscript. TIK participated in designing the study, analysis and interpretation of data, and writing the manuscript. DOT participated in interpretation of data and writing of the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

The data set generated and analysed during the current study are not publicly available, as further papers will be written based on the data sets, but are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

The study was approved by the Norwegian Centre for Research Data (project number 43163) and was exempted from ethical approval by the Regional Ethical Committee because no health information was collected. The Declaration of Helsinki formed the basis for ethical considerations in the recruitment process. The participants gave written informed consent to participate, and the data was kept confidential.

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Credit author statement

BA, DOT, and TIK conceived the study and elaborated the questionnaire in collaboration. BA and TIK handled data collection. BA did all statistical analyses in collaboration with TIK. BA drafted the manuscript and revisions. All authors gave input to the manuscript and accepted the final version.

Declaration of competing interest

The authors declare they have no competing interests.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2020.113067.

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