

MEDICAL FACILITY MANAGEMENT IN THE CONTEXT OF THE COORDINATED MEDICINE MODEL – RESEARCH ASSUMPTIONS

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Purpose: The main purpose of the paper is to present research assumptions on the issues of the coordinated medicine model and the management of a medical facility. Due to the comprehensiveness of the topic, the paper is another part of the publication series.

Design/methodology/approach: The paper is based on a theoretical analysis and literature review.

Findings: The paper describes the main research assumptions.

Research limitations/implications: The content presented here provides an introduction to undertaking research on the coordinated medicine model.

Practical implications: The considerations presented and references to international experience provide a basis for further research to identify possible impacts on improving the availability and quality of health service provision in Poland.

Social implications: Undertaking research based on the theoretical assumptions of the model described should improve the health of the population and make more rational use of resources to improve access to services.

Originality/value: The paper is primarily addressed to health care managers, as well as economists and government employees dealing with management issues in health care and public health.

Keywords: management, quality management, coordinated medicine, treatment facility, healthcare system.

Category of the paper: General review.

1. Introduction

This paper is a development of the research issue undertaken by the author (Skowron, 2023). Currently, changes have been initiated in Poland with the aim of creating a public payer financing system for health services provided as part of comprehensive care. Attempts of this type of action, with currently unknown results, may be: comprehensive care for women and children, combining invasive cardiology and orthopaedic services with rehabilitation,

or the announced projects for reform of psychiatric care. However, the above changes in the way funding is provided are limited in scope and focus on particular health problems of limited patient groups. They do not, however, solve the fundamental problems facing health care in Poland, such as: limiting the negative effects of civilisation diseases, ensuring continuous preventive care for entire local populations, transferring diagnostic, therapeutic and rehabilitation competencies to the lowest effective level of care, control and optimisation of costs. These challenges can only be met by a far-reaching change in the delivery process in ambulatory healthcare (Skowron, 2023).

The starting point for undertaking the research is the results of NIK (Najwyższa Izba Kontroli – Supreme Audit Office) audits, carried out periodically in recent years, which indicate the need for urgent changes, both in terms of financing and organisation of the health care system. The system is not patient-friendly, does not ensure efficient use of public funds, and creates problems for the managers of health care entities and the staff employed in them. There are five main areas of research undertaken (NIK, 2019):

- organisation and resources,
- system funding,
- availability of benefits,
- rights and patient safety,
- system's information resources.

Of course, the research problems indicated above are very general and only show the most important problems to be solved in the health care system, which in turn is necessary to ensure that citizens utilise their constitutional right to health care. One such direction could be precisely the introduction of a well-designed model of coordinated medicine.

The impairments mentioned above will form the basis for the Author's research in this area.

Therefore, the main research problem of the research undertaken relates to the identification of the coordinated care pathways used and the associated management models of medical facilities and the evaluation of their effectiveness, i.e. to determine the extent to which these models support the achievement of their statutory and strategic objectives. This problem is to be verified on a representative research sample and provide answers to the following questions:

- Are the different pathways of coordinated care being used in health units?
- What are the opportunities and constraints in managing coordinated care?
- Is it possible to assess the effectiveness of the management approaches used in medical facilities in terms of achieving their statutory and strategic objectives in the context of integrated care?
- Is it possible to identify an effective method of governance for the coordinated medicine model?

- Does the use of the coordinated medicine model improve the quality of healthcare?
- Does managing a treatment facility in the context of coordinated care optimise costs?
- Does the use of coordinated medicine pathways improve communication between specialists and patients and affect patient and medical staff satisfaction?
- Can technologies supporting coordinated medicine be identified?
- Can and how can the management of coordinated medicine affect equity in access to medical care as well as public health?

Co-ordinated medicine aims to create a more integrated and efficient healthcare system, and the research planned in this area can contribute to new and better solutions for treatment, organisation of care and health policy.

2. Research model

For the purposes of the research objectives pursued, a research model was developed (Figure 1), in which the following types of study variables were distinguished.

Dependent variables – relating to the effectiveness of the management of a medical facility in the context of the coordinated medicine model, classified in the dimensions of organisation and resources, system financing, availability of services, patient rights and safety and information resources of the system.

Independent variables – describing management in the coordinated medicine model, determined by the following criteria: flexibility of staffing, availability of human resources, freedom of decision-making regarding subcontractors, the way in which services are financed and the rules for billing the payer.

Variables of the background – these are constituted by the legal norms of the relevant coordinated medicine pathways, the specifics of the health sector in Poland, the conditions of operation of treatment facilities and the balance of human resources in the existing organisational and legal conditions.

Catalysing variables – depicting individual characteristics influencing the management of the coordinated medicine model: size of the organisational unit under study, activity profile, number of employees and founding body.

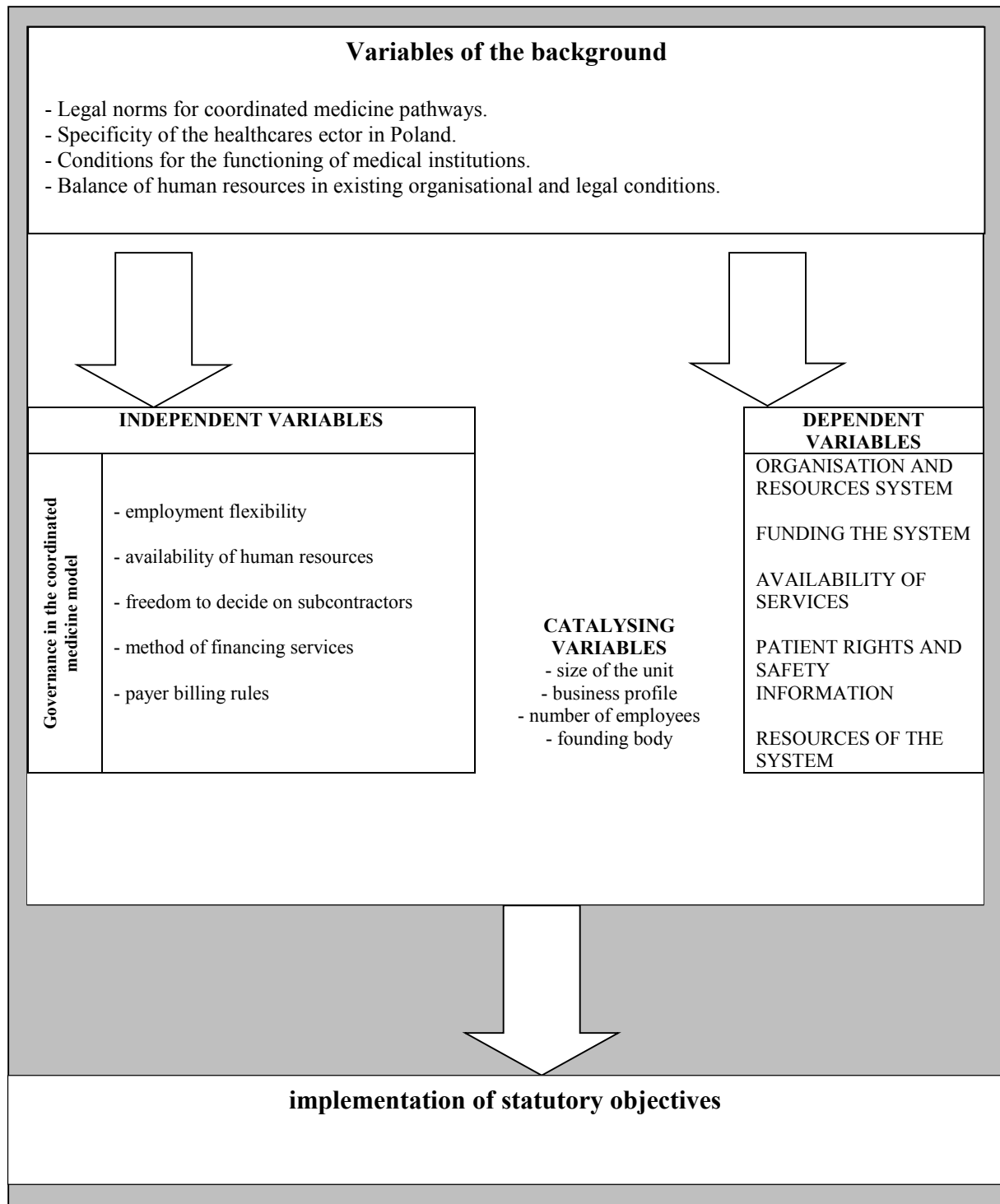


Figure 1. Research model.

Source: own work.

It should be noted that the multidimensionality and multifaceted nature of issues concerning the specificity of the functioning of health care units in Poland, is extremely complex. Hence, the developed research model can be elaborated and expanded in any way, thus creating an opportunity for further research development in this area.

3. Organisation of research

The starting point for the projected research is the transformations taking place in Polish legal norms with regard to the possibility of managing a health care unit in an alternative model of coordinated care pathways and the resulting problem of human resource balance. Both of these premises condition the functioning and implementation of the statutory goals of health care units. On this basis, the research procedure was designed, which is presented above, while the course of the conducted research (procedure, areas and methods) is illustrated in Figure 2.

The scope of the study was determined by the stated aims of the work and includes:

- identification of possible pathways for coordinated care and management options in this context in medical facilities,
- collection of data necessary to evaluate and compare the effectiveness of the management methods identified,
- identification of the main barriers limiting the effectiveness of governance in the context of the coordinated medicine model,
- identification of actions that could reduce or remove the identified barriers,
- verification of the thesis and research hypotheses set out in the paper.

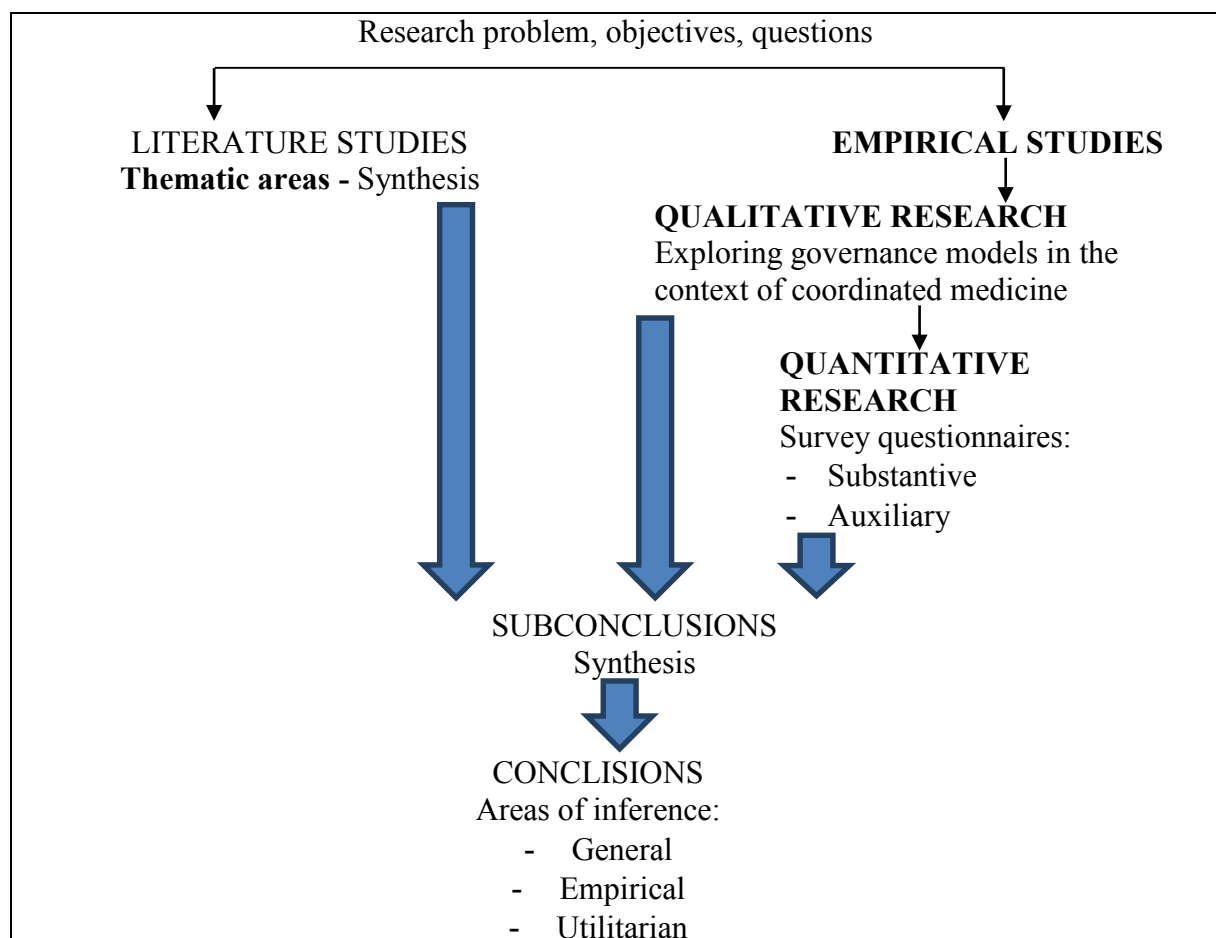


Figure 2. Survey procedure. Source: own work.

3.1. Qualitative research – the first stage of empirical research

The first stage of the research, which is a qualitative research phase that forms the basis for further (quantitative) research, is planned for the second half of 2025.

Qualitative research applied at this stage will allow us to look at the issues through the eyes of the respondents, see the phenomenon, explore it, get to the mechanisms behind it and determine the views of the employees of the units under study (Churchill, 2002; Michna, 2009). They will serve as a source of inspiration for the creation of a quantitative tool, which is important especially in the case of a 'fresh' research topic such as the one addressed in this paper. The methods that will be used in this stage of the research are:

- casual interview,
- participatory observation,
- analysis of legal acts and internal documents.

The aim of this stage of the research will be to observe whether specific management methods are used in the context of the coordinated care model in individual medical facilities, with particular reference to public hospitals (city and provincial hospitals), multi-specialist outpatient clinics and other publicly funded entities, and whether they can be adapted and applied for the management of other units. To this end, a research tool will be created in the form of a taxonomy matrix, by means of which the management method of the coordinated medicine model used in a given unit will be determined.

3.2. Quantitative research – second phase of empirical research

Quantitative research involves questionnaire surveys conducted on relatively large samples of respondents, most often representative of the target population, using statistical and mathematical methods for sample selection and calculation of results. They involve the collection of data, gathered from respondents by means of forms - questionnaire surveys and interviews. A certain number of respondents, selected according to the rules of statistics, answer the questions contained in the questionnaires. On the basis of the data collected in this way, it is possible to answer the question "how many" – approximately – people in the surveyed population know e.g. a given brand, have watched an advertising film, use a product, own a certain item, etc.? They thus make it possible to establish how often various opinions and facts occur in a given population. Quantitative research is used when on the basis of the results obtained on a given sample, conclusions are drawn about a certain population, larger than the sample under study (e.g. the population of the general adult population of Poland, the population of consumers of a specific product category, the population of housewives aged 18-35, etc.). Inference from the results of quantitative research is subject to the principles of mathematical statistics. It usually makes it possible not only to obtain certain numerical estimates for the general population, but also to determine the statistical error that these estimates are subject to. With regard to the survey population, quantitative surveys can be

divided into consumer surveys, in which individuals or households are surveyed, business-to-business surveys, in which business entities (companies) are surveyed, and distribution surveys covering commercial and service establishments (shops, wholesalers, bank branches, etc.).

3.3. Research tool

The management pathways identified in the first stage of the research in the context of coordinated medicine should confirm the feasibility and necessity of further research aimed at assessing the effectiveness of management in individual organisational units. In this stage, a set of two surveys will be used, consisting of a self-administered survey questionnaire (substantive) to investigate the effectiveness of a particular management pathway and a self-administered survey questionnaire (auxiliary) to investigate motivational factors, complementing this stage of the research.

In both the first and second research tools, statements will be used, requiring responses graded on a Likert scale that allows respondents to indicate their attitude to each statement in terms of: "strongly agree", "rather agree", "no opinion", "rather disagree", "strongly disagree" (Oppenheim, 2004).

3.4. Statistical verification of the survey instrument

Before proceeding with the research, it will be necessary to verify the research tool for reliability. For this purpose, the Cronbach's reliability test will be used. This is a coefficient for a summary scale whose items can be measured on any ordinal scale. Its form is as follows:

$$\alpha = \frac{k}{k-1} \left[1 - \frac{\sum_{j=1}^k S^2(x_j)}{S^2(x_s)} \right] \quad (1)$$

where:

$S^2(x_j)$ is the variance of a single variable,

$S^2(x_s)$ is the variance of the synthetic (aggregate) variable,

k – number of questions forming the synthetic variable.

This coefficient indicates how much of the variance of the summary scale is the variance of the true value of that scale. A value of zero means that the individual scale items do not measure the true score, but only generate random error. As a result, there is a lack of correlation between the items of the summated scale. In studies, the reliability of the measurement tools used should exceed 0.7, some authors report a range (0.6-0.8). The values of the Cronbach reliability test for the individual modules of the research tool - the content-related questionnaire and the auxiliary questionnaire - are presented below.

3.5. Test sample

A survey - both qualitative and quantitative – is planned among the staff of the Society of Healthcare Managers (STOMOZ). Its history dates back to 1991. In that year, the first graduates of the Postgraduate Study of Health Economics, which was organised and headed by Dr Katarzyna Tymowska, left the University of Warsaw. They decided to found the Association of Health Care Managers.

The first President of the STOMOZ General Board was Józef Tazbir – Director of the M. Kopernik Provincial Specialist Hospital in Łódź, who was succeeded for successive terms by Marek Wojtowicz – then Director of the Specialist Hospital in Lubartów, later Medical Director and Chief Executive Officer of the Specialist Hospital in Puławy, Director of the Lubelskie and Mazovian Provincial Branches of the National Health Fund (transition to work in the National Health Fund, in accordance with the statutory requirements of STOMOZ, was the reason for his resignation from the position of President). The next president of the General Board was Jarosław Kozera, then his place was taken by Danuta Tarka – the director of treatment at the Provincial Complex Hospital in Płock. Subsequently, Małgorzata Majer – Director of the Wł. Biegański Provincial Specialist Hospital in Łódź – took over as President, and since 2016 the General Meeting has entrusted the leadership of the Association to Iwona Mazur – Director of the Day Psychiatry and Speech Disorders Centre for Children and Adolescents in Wrocław. Since 2021, the President of the General Assembly has been Dariusz Rajczyk – President of the Management Board of Centrum Medyczne SILESIA Sp. z o.o. Hospital in Zabrze.

The Association of Health Care Managers is the oldest organisation in Poland that brings together managers involved in the management of health care institutions. From its ranks come many ministers, deputy ministers, central and local government officials who are responsible for the organisation of health care in Poland.

Today, STOMOZ supports decision-makers with its experience and knowledge, actively participates in the creation of legislation, in consultations with representatives of the Ministry of Health and the National Health Fund. It provides opinions on legal acts concerning the health care environment, supports managers in improving their professional competences, and participates in international educational projects. STOMOZ is an apolitical, professional organisation and upholds the interests of both patients, the healthcare system and managers – the people who are responsible in hospitals, clinics and medical companies for implementing statutory solutions.

The specific objectives of the Association are (www.stomoz.pl):

- ensuring high professional qualifications and moral standards and to protect the dignity and professional ethics of healthcare managers,
- integration of those in managerial roles in healthcare and those interested in the processes of management, organisation and economics in healthcare,

- working towards the dissemination of effective and efficient methods of healthcare management,
- initiating and taking action to improve the legislation governing healthcare,
- initiating and promoting research and solutions for modern healthcare management methods,
- cooperation with national and international organisations dealing with management, organisational and economic processes in healthcare,
- dissemination abroad of Polish experience in management, organisation and economics in health care.

The above objectives are achieved in particular through:

- dissemination of knowledge on organisation, management and health economics, effective and efficient management methods and organisational solutions, through courses, seminars, congresses, conferences and other forms of training, including e-training,
- provision of legal and other assistance to the members of the Association in matters relating to the achievement of the Association's objectives,
- promoting professional ethics and adherence to the norms of coexistence in the Association with the involvement of the collegiate judiciary,
- giving an opinion on draft legislation governing healthcare,
- submitting opinions, proposals and draft changes to the authorities for the efficient, effective and socially acceptable functioning of health care,
- cooperation with national and foreign associations, organisations and other institutions,
- cooperation with the competent authorities and institutions in the development of teaching and training methods and programmes in the field of organisation, management and health economics.

The association pursues its objectives in accordance with the applicable law, especially the Associations Act and its statutes.

3.6. Possible further lines of statistical analysis

Depending on the course of the research and the results obtained, further statistical verification of the data obtained will take place. In particular, the following statistical analyses will be used (Pawłowski, 1976; Gatnar, 1998; Domański, 1979, 1980; Ferguson, Takane, 1997):

- factor analysis,
- Keiser-Meyer-Olkin statistic,
- analysis of variance,
- Newman-Keulustest,
- Kruskal-Wallis test,
- Shapiro-Wilk test,

- Brown-Forsyth test,
- Mann-Whitney U test,

The selected statistical analysis tools proposed above should play a key role in the research being designed, as they will enable accurate interpretation of the data and the drawing of key conclusions based on the information collected. Here is the main importance of statistical analysis in scientific research.

4. Conclusion

Coordinated care can be a solution to the problems of Polish health care. It will not only improve the quality of patient care, but also increase its effectiveness. At the moment, the issue of introducing such a model of health care system management faces many challenges, which may hinder its introduction or discourage further expansion to new groups of patients. When deciding on such a management model, it should be emphasised that a prerequisite for this model is information sharing, so it is important to connect different IT systems (or build new dedicated solutions) – doctors must have full information about their patients (both administrative and medical data) delivered in a timely and usable manner. Finances and economic pressures on healthcare systems can also be a significant impediment to integrative care projects. It takes several years to implement a project and a short-term approach to efficiency gains can overshadow the benefits of long-term, systematic improvements. Another major challenge is overcoming a lack of understanding on the part of the patient and physician about the needs of the evolving system. Integrated care prioritises the needs of the patient, focusing on managing health with the help of information and assistive technologies. It is also worth bearing in mind that the governance model under discussion raises concerns for both doctors (due to a change in the way funding is directed – there is a greater focus on the outcome of treatment rather than the delivery of the service itself, as in the traditional model) and other system staff working with the doctor (there is an issue of independence and subordination of individuals and processes within the redefined model). In addition to the above challenges, there are also issues of different types of integration (coordination) and differences in the priorities of different groups caring for the patient, e.g. medical staff or social workers, who have their own standards and regulations.

Conducting research on the management of a medical facility in the context of the coordinated medicine model requires a multidisciplinary approach that encompasses both the clinical, economic and organisational aspects of the entire healthcare setting.

The research assumptions presented in the above paper are only a prelude to further publications by the author in this area. At present, the research design is outlined. Further conclusions and directions of statistical analyses will be contoured after obtaining data from surveys conducted in the STOMOZ Association.

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