

EFFECTIVENESS AND EFFICIENCY IN ASSOCIATIONS OF PARENTS AND FRIENDS OF THE DISABLED PERSONS FROM MINAS GERAIS

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ABSTRACT

As social management is a current discussion in organizational studies, this article seeks to understand and explain the effectiveness and efficiency of the Associações de Pais e Amigos dos Excepcionais (APAE, Associations of Parents and Friends of the Disabled Persons) in the state of Minas Gerais, Brazil, based on their statutory mission that works as a guideline for their practices. The analysis is based on the point of view of APAEs' managers under the three dimensions of their mission: services rendering, improvement of the quality of services and defense of the rights of persons with intellectual disability, understanding the dimensions as systems interacting with the external environment, based on a survey applied to a representative sample of 199 randomly selected APAEs, segmented into three pre-defined clusters according to size. This questionnaire was self-administered by the managers and directors of the APAEs from the sample. It comprises a series of questions based on 54 indicators presented in the three dimensions observed in the statutory mission of the APAEs. In order to analyze the effectiveness and efficiency based on those indicators, effectiveness and efficiency indices were built. These indices were submitted to several statistical analysis techniques, taking the systemic theory and the concepts of effectiveness and efficiency as references. The results obtained indicate the existence of structural homogeneity on the APAEs, regardless of their eight clusters distributed by quartiles according to their different levels of effectiveness and efficiency (low, average, high, and very high). It was not possible to achieve an explanatory quantitative model of the effectiveness and efficiency levels of the APAEs considering the influence of the internal and external variables to which they were related.

KEYWORDS

Association of Parents and Friends of the Disabled Persons, system, effectiveness, efficiency

EFICÁCIA E EFICIÊNCIA NAS ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS DE MINAS GERAIS

RESUMO

Como a gestão social é uma discussão atual nos estudos organizacionais, este artigo busca contribuir para compreender e explicar a eficácia e a eficiência nas Associações de Pais e Amigos dos Excepcionais (APAE) de Minas Gerais, Brasil, tomadas do ponto de vista da sua missão estatutária como orientadora de suas práticas. A análise é feita com base na visão dos gestores das APAE sob as três dimensões da sua missão: oferta de serviços, melhoria da qualidade dos serviços e defesa de direitos das pessoas com deficiência intelectual, entendendo-as como sistemas em interação com o meio ambiente externo. Com base num inquérito por questionário aplicado a uma amostra representativa de 199 APAE selecionadas aleatoriamente, foram segmentadas por três clusters pré-definidos segundo a dimensão (porte). Esse questionário foi auto

administrado pelos gestores e diretores das APAE, da amostra, sendo composto por uma série de perguntas em função de 54 indicadores presentes nas três dimensões observadas na missão estatutária das APAE. Por forma a analisar a eficácia e a eficiência com base naqueles indicadores, construíram-se índices de eficácia e eficiência. Tendo como referencial a teoria sistêmica e os conceitos de eficácia e eficiência, submeteram-se esses índices a várias técnicas de análise estatística. Os resultados obtidos apontam para existência de homogeneidade estrutural das APAE, independentemente dos seus oito clusters formados com base na distribuição por quartis dos seus diferentes níveis de eficácia e eficiência (baixo, médio, alto e elevado), não tendo sido possível chegar a um modelo quantitativo explicativo dos níveis de eficácia e eficiência das APAE, considerando a influência das variáveis internas e externas com que foram relacionados.

PALAVRAS-CHAVE

Associação de Pais e Amigos dos Excepcionais, sistema, eficácia, eficiência

INTRODUCTION

This article is part of the debate about the management of civil society organizations (CSOs) and aims to understand how effectiveness and efficiency can be verified in these types of organizations.

According to Steinberg and Powell (2006), there are multiple definitions and categorizations for these types of organizations, which generates much confusion, such as non-governmental, third sector, non-profit, non-economic, philanthropic, voluntary organizations, of the independent sector, among others.

These multiple definitions have generated much confusion over time, leading the Brazilian Congress to approve Law no. 13.019 (Lei nº 13.019), of July 31, 2014, which defines non-profit organizations and those originating from civil society as CSOs.

The study aimed to understand the effectiveness and efficiency of the Associações de Pais e Amigos dos Excepcionais (APAE; Associations of Parents and Friends of Disabled People) in the state of Minas Gerais, Brazil. CSOs have been created to meet the needs of civil society both to support people with intellectual and multiple disabilities in the process of qualification and rehabilitation and partnership with public policies developed by the Brazilian State.

Therefore, this investigation was based on a systemic approach and organizational effectiveness and efficiency concepts. Through a quantitative approach, a self-applied questionnaire was sent to a random sample of 199 managers from APAEs. Here, the effort was to seek elements that help us quantitatively understand the effectiveness and efficiency in the APAEs network in Minas Gerais from the perception of the organizations' managers, understanding it as part of a system and considering its heterogeneity when offering services.

Descriptive, cluster, quartile analyses Pearson's correlation coefficients were carried out, and a multiple linear regression model was built to try to find an explanatory model of the effectiveness and efficiency in the Minas Gerais APAEs. Only the quartile

analysis allowed the segmentation of the APAEs into eight clusters, and it was not possible to reach the desired explanatory model of the effectiveness and efficiency of the APAEs.

THEORETICAL-CONCEPTUAL FRAMEWORK

The general growth of complexity and uncertainty present in the contemporary world slowly (but inevitably) leads us to an overview of the world that, according to Rosnay (1975), requires an effort to synthesize what the systemic approach entails as a method of understanding the phenomena of contemporary society. Thus, according to Durand (1979/1992), we have three major categories of systems: the physical, atomic, and solar systems. Living systems are ecology and biology; social systems include work organizations and the family; there are also economic and political systems.

A system is “a set of elements that relate to each other, forming a whole, and its structure is formed by its elements (subsystems), being the living element - the person or the group - the transforming element within the organizations”, according to Bériot (1992/1997, p. 21). Furthermore, according to this author, a system will have more opportunities to optimize its results if there is consistency between its purpose and its actions. Then, it is necessary to know the relationships between the individuals that compose it, as this interaction allows knowledge of the system and not the individuals themselves. To act on a system, one must commit to its current functioning and not to the history or causes that explain its functioning deficiencies. Likewise, it is essential to consider the natural tendency of the elements of the system that are resistant to change. Furthermore, Bériot (1992/1997) points out that “the adaptability of a system depends on the balance between the set of rules (the norms), which can prevent a disorganized reaction to change” (p. 45). Finally, the information circulating in the system, and the conditions for passing this information along, make it possible to guide or misguide the change to be made.

In turn, Brito (1989) understands a system as “a set of symbols through which we describe the empirical behavior that characterizes the organization” (p. 35). CSOs are non-profit and autonomous, not linked to the government. In general, the product of the activities of these organizations does not generate goods or financial resources, which makes them dependent on donations and governmental partnerships. Furthermore, the statutes define their purpose, and their organization is characterized by informality, with practically no written rules and procedures. Moreover, although there is a planning process, it is not formalized. There is also no systematization of data for evaluation purposes (Tenório, 2009).

Drucker (1990/1994) adds that “these organizations exist to bring about changes in individuals and society” (p. 3). Therefore, the APAEs exist to transform the relationship of Brazilians with disabilities with society. Thus, this type of organization should not be a mere service provider but consider its end-user as an agent of transformation of individuals and society (Brito, 1989). However, from a sociological perspective, CSOs

have some points in common with other work organizations, as they involve social formations with specific members and clear, internal differentiation of roles. Furthermore, they present a rational orientation towards their objective, which is how to study them as a social system (Brito, 1989). According to Drucker (1990/1994), this orientation must be clear and objective and be expressed in the organization's mission. That is of utmost importance for setting concrete action goals and for the commitment of individuals to the objective to be achieved.

Therefore, for a CSO like APAE to provide good quality service, it is not enough for parents, people with intellectual disabilities, and friends to get together and seek resources to support the association. It is equally necessary to ensure that the resources obtained are allocated in the best possible way and that the work is carried out correctly. Thus, to achieve the objective, it is necessary to have a clearly and objectively defined mission and goals and efficient management of the parts that make up this association: administrative and financial areas, educational, health, and social assistance.

These goals must be evaluated based on the mission established and described in Chapter 1, Article 3rd of the standard statute:

Art. 3rd – The APAE's MISSION is to promote and articulate actions to support rights and preparedness, guidance, provision of services, and support to the family, improving the quality of life of disabled people, and building a fair and solidary society. (APAE Brasil, 2015)

This set of intertwined elements forms the social system, with subsystems in its structure, the living element — the person or the group — the transforming element within organizations. However, these elements can behave differently depending on the system inserted and influenced by elements with which they are reciprocally related. They may even be divided into smaller elements according to the level of observation that we intend. In this case, the smallest human element considered in the systemic approach is the person (Bériot, 1992/1997). Also, according to this author, a system will have more opportunities to optimize its results if there is consistency between its purpose and its actions and if we know the relationships between the individuals it comprises.

The way to verify whether the objectives of an APAE or any other form of work organization are being achieved is through effectiveness and efficiency measures. According to Cameron (1986), despite effectiveness and efficiency being one of the organizational studies' central concepts, there is some confusion. However, this confusion becomes understandable when we realize that it occurs because organizations change and, consequently, the organizational model of effectiveness and efficiency will also change. Any model used to measure these concepts will be dynamic and can be directly affected by organizational changes.

According to Robalo (1995), the terms effectiveness and efficiency are not equivalent, but the distinction between them is not always established in the same way. Effectiveness is an absolute concept, as an APAE can be effective or ineffective in achieving or not achieving its goal. The goal achieved must be the one described in its mission

and thought of regarding APAE as a whole, in a systemic perspective, considering the conditions required for its maintenance and the dynamics of its relationships with other institutions in the municipality. On the other hand, efficiency refers to the best way to reach a particular objective. It is, strictly speaking, a relative and not an absolute concept. That is, one APAE can be more efficient than another or others; one service or technique may be more efficient than another. Therefore, there will not be just one efficient APAE, service, or technique, but those that are more or less efficient than the other(s).

Castro (2006) adds to this understanding by stating that efficiency is not concerned with goals; it is part of the operational activities; that is, it is focused on internal aspects of the organization. Thus, effectiveness is what concerns goals in achieving the organization's objectives. An organization, then, can be efficient and not effective and vice versa. Ideally, it would be equally effective and efficient.

Briefly, Tenório (2009) defines that "effectiveness is doing what must be done, that is, meeting the specific objective" and "efficiency is the best way to do something with the available resources" (p. 18), and presents the following organizational performance hypotheses (Table 1).

PERFORMANCE	EVALUATION
Effective and efficient	The proposed objectives were achieved, with the least use of available resources
Effective but not efficient	The objectives were achieved, but with greater consumption of resources than expected
Efficient but not effective	The resources were used as planned, but not all the expected objectives were achieved
Not effective and not efficient	The objectives were not achieved, and more resources than expected were used

Table 1 Summary of hypotheses for analyzing the performance of organizations

Source. Tenório, 2009, p. 19

Conversely, as Cameron (1986) stated, there is no consensus on the best or a good set of indicators to measure organizational effectiveness and efficiency, with no specific limits. However, different models are useful to research on different circumstances and must start with a clear organizational mission to define the best way to carry out the activities in the organizations.

Added to this is that organizational effectiveness and efficiency, according to Cameron (1986), are problem-oriented, not theoretical, constructs. Therefore, it can be said that the act of managing an APAE encompasses the pursuit of effectiveness and efficiency in its everyday activities, from a systemic perspective based on the clear and straightforward definition of its mission, linked to external issues that may impact it.

METHOD

We consider this article an exploratory study, as there is little accumulated and systematized knowledge about efficiency and effectiveness in APAEs. It is also a field study; an empirical investigation carried out in APAEs in Minas Gerais, which searches the explanatory elements of the phenomenon (Gil, 2008), based on a quantitative methodological approach.

The definition of the sample followed the teachings of Laville and Dionne (1997/1999), for whom the representative character of a sample depends on how it is established. In this study, the sample was selected randomly from a complete list of APAEs. That is a probabilistic sample, allowing all APAEs operating in the state of Minas Gerais the opportunity to participate. The sample size (199) was determined based on the finite population of 408 APAEs at the confidence level of 95% (n' ; Equation 1).

$$n = \frac{N \cdot \hat{p} \cdot \hat{q} \cdot (Z\alpha/2)^2}{\hat{p} \cdot \hat{q} \cdot (Z\alpha/2)^2 + (N-1) \cdot E^2} \quad (1)$$

$$n = \frac{408 \times 0,25 \times (1,96)^2}{0,25 \times (1,96)^2 + (408 - 1) \times 0,05^2} = 199 \text{ (rounded up)}$$

Subsequently, this random sample was stratified, considering the three clusters constructed according to the size of the APAE. That is defined by the Federation of APAEs of the state of Minas Gerais, based on its provision of service: size 1 APAEs offer only education service (authorized by the State Council of Education), or social assistance (National Register of Social Assistance Establishments), or health (National Register of Health Establishments); size 2 APAEs offer two of these services; and, the larger ones offer the three services (Table 2).

CLUSTERS	NUMBER OF ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS	STRATIFIED SAMPLE
Size 1 (offer one service)	84	41
Size 2 (offer two services)	137	67
Size 3 (offer three services)	187	91
Total	408	199

Table 2 Size of the population and sample of *Associações de Pais e Amigos dos Excepcionais* stratified by cluster

¹ Sample size (n) based on population proportion estimate. Sample size was calculated based on the formula above and, as p and q are unknown, they were replaced by 0.5, obtaining the presented estimate.

It should be noted that a 10% APAEs percentage was drawn as a reserve in case replacement was required. This survey was self-administered (Almeida & Botelho, 2006) by the interviewees, consisting of a series of questions based on the three dimensions observed in the statutory mission of the APAEs: service provision, improving the quality of life, and defending rights.

From the perspective of *service provision*, the questions were based on the knowledge of APAEs from Minas Gerais and sought to include aspects of the four functions of administration (planning, organization, direction, and control), the installed capacity of the APAEs, the quality of the services provided, the results achieved with the users, the satisfaction of the users with the services offered and the innovations incorporated into the services.

From the perspective of *improving quality of life*, the model applied in intellectual disability was developed by Schalock and Verdugo (2007), added to the teachings of Veiga et al. (2014). On that basis, questions were defined regarding the inclusion of people with intellectual and multiple disabilities in the formal labor market, their integration into the community, the development of their personal skills, their social relationships and interactions, aspects of their self-determination and independent life, in addition to aspects of their psychological well-being and personal satisfaction.

From the perspective of *defending rights*, the questions were based on the Convention on the Rights of People with Disabilities incorporated into the Brazilian Constitution of 1988 (Decreto nº 6.949, 2009).

After the questions were defined, they were submitted to a panel of experts working in the organizations studied. The panel consisted of a speech therapist, a social worker, a social scientist, an art specialist, an occupational therapist, an administrator, and an educator, who contributed to adapting them to the reality of the Minas Gerais APAEs.

Then, the questionnaire was tested on a small sample of 16 APAEs from Minas Gerais, not drawn in the random sample. The aim was to adapt the questionnaire in terms of understandable language and adequate intellectual level (Almeida & Botelho, 2006) and avoid potential problems given the heterogeneous profile of the Minas' APAEs' managers.

Finally, the managers were asked whether, in their opinion, those issues were present or not in the respective APAEs during 2019.

After performing the pre-test, the questionnaire was completed and sent to the 199 APAEs in Minas Gerais from the random sample, using Google Forms. In addition to being free, this online tool enabled respondents' access from any place and at any time, streamlining data collection and obtaining a total of 199 responses complying with the established dimension.

ORGANIZATIONAL TRAITS: MANAGERS' PERSPECTIVE ON ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS NETWORK IN MINAS GERAIS

This aspect describes the main quantitative traits contributing to understanding the differences and similarities between the three sizes of APAEs regarding the three dimensions that make up their mission. This description is based on evidence established from frequency analysis of the data collected through the questionnaires and data from some official systems of the Brazilian government: Unified Social Assistance System, National Education System, and Unified Health System.

DIMENSION OF THE ASSOCIAÇÃO DE PAIS E AMIGOS DOS EXCEPCIONAIS AND OF THE MUNICIPALITY

Comparing the APAEs by size and their municipalities dimension, we observe that 48.8% of size 1 APAEs are located in micro-municipalities (up to 10,000 inhabitants), 39% in small municipalities (from 10,001 to 25,000 inhabitants), and 12.2% in medium-sized municipalities (from 25,001 to 55,000 inhabitants). Therefore, the smaller ones are mostly located in micro and small municipalities.

Regarding the per capita gross domestic product (GDP) of these municipalities, compared to the average per capita GDP of R\$33,593.82 and R\$29,223.00 in Brazil and Minas Gerais (2018), respectively, it appears that only 14.6% of these municipalities surpass the average Brazilian GDP, and 17.1% surpass the Minas Gerais average. The GDP in 82.9% of the small-sized APAEs municipalities is below the average per capita for Brazil and Minas Gerais.

The medium-sized APAEs, that is, those that offer two services (education and health, or education and assistance, or assistance and education), are located mostly in micro-municipalities up to 10,000 inhabitants (28.4%) and medium-sized municipalities from 25,001 to 55,000 inhabitants (56.7%). The others are divided: 8.9% are located in small municipalities (from 10,001 to 25,000) and 6.0% in large municipalities (over 100,000 inhabitants).

As for the per capita GDP of the municipalities where the medium-sized APAEs are located, we find that only 9.0% of them are above the national average. This percentage increases to 13.4% when compared to the Minas Gerais average. Therefore, 86.6% of the municipalities where the medium-sized APAEs are located have per capita GDPs lower than the Brazilian and Minas Gerais averages.

When we look at the data for the larger APAEs, those that offer three services, we notice a concentration of large APAEs in small (from 10,001 to 25,000) and medium-sized municipalities (from 25,001 to 100,000), 43.8% and 35.2%, respectively, while 11% of them are located in micro-municipalities with less than 10,000 inhabitants and 10% are located in large municipalities (over 100,000 inhabitants). So, the large APAEs are mainly located in small and medium-sized municipalities.

As for the per capita GDP of the municipalities where the largest APAEs are located, only 16.4% of the municipalities have a per capita GDP above the Brazilian average. This percentage grows to 24.2% when we consider the Minas Gerais average. Therefore, more

than 70% of the municipalities where the largest APAEs in Minas Gerais are located have per capita GDPs below the Brazilian and Minas Gerais averages.

DISTRIBUTION OF THE HUMAN RESOURCES OF THE ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS

This information was requested from all APAEs in the sample. Its composition was systematized and broken down according to the sizes of the APAEs. In size 1 APAEs, it appears that 29.3% of them, considering only the human resources dimension, are similar to micro-companies (from one to nine employees), and the remainder, 70.7%, are similar to small businesses (from 10 to 99 employees). Most APAEs, about 87.8% of them, present an asymmetrical distribution of technical and administrative employees, in favor of technical employees, except for two that have additional administrative employees. Four APAEs have a symmetrical distribution between technical and administrative employees.

In size 2 APAEs, we observed that eight APAEs had fewer than 10 employees. Observing only this dimension, this is equivalent to a micro business and represents 11.9% of the total APAEs of this size. The remainder, 88.1%, is classified as small companies.

As for the distribution of employees between technicians and administrative staff, it can be observed that most APAEs, 97.0%, are asymmetrical, having a more significant number of employees in the technical area compared to those in the administrative area. The exception is that three APAEs have a higher percentage of administrative employees than technicians. Only one APAE has a balanced relation between the number of technical and administrative employees.

In the APAEs that offer the three services (education, health, and social assistance), 3.3% are similar to medium-sized companies, and 95.6% are similar to small companies when we look only at the number of employees. Regarding the distribution of employees between technicians and administrative staff, 4.4% have symmetrical distribution between the two types of employees, and 95.6% have asymmetrical distribution between technical and administrative employees. Only 3 of these APAEs have more administrative than technical employees; the others have a higher percentage of technical staff.

DISTRIBUTION OF USERS OF THE ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS

Data on users of the APAEs were collected from the official systems of the Unified Social Assistance System (Secretaria Nacional de Assistência Social, n.d.) and the National Education System through their censuses (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira, 2020), and from the Unified Health System through the deliberations of the goals of the services of the care network for people with disabilities in Brazil (Deliberação CIB-SUS/MG nº 1.404, 2013; Deliberação CIB-SUS/MG nº 1.403, 2013).

In size 2, there are six APAEs, 9.0% of the total, without any user information in the official systems, and 19 APAEs, 28.4% of the total, with information from only one of the services offered. That means that the APAE either did not inform existing users in one of the official systems or has a health service that supports users of other services and is not part of the care network.

Data for the size 3 APAEs show that 62.6% of them are from the care network for people with disabilities with specific public funding. Therefore, the number of users corresponds to their goals deliberated by the public-private partnership. In addition, eight APAEs present data from only two services, 8.8% of the total. That indicates that they did not inform users of one of them, and/or they have a health service that is not part of the care network, which supports users of another service.

When comparing the number of users of size 1 APAEs with the estimated population of people with intellectual disabilities (PWID) in the municipality, apparently, two APAEs have more users than the Instituto Brasileiro de Geografia e Estatística estimate of 1.4% of the population. Regarding the other APAEs of the same size, most have fewer users than 50% of the estimated PWID population. Of these 23 APAEs, nine have fewer users than 15% of the estimated population.

In size 2, seven APAEs have more users than the estimated PWID population. Among the others, 25.4% have more users than 50% of the estimated population, and 53.7%, nine APAEs have fewer users than 50% of the estimated population.

In the larger APAEs, 11 (12.1%) have a higher number of users than the estimated PWID population in the municipality; 17.6% have more users than 50% of the estimated population of the municipality, and 70.3% have fewer users than 50%. Of these, 18.7% have 15% fewer users than the estimated population of the municipality.

DIMENSION OF THE ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS NETWORK IN MINAS GERAIS: PROVISION OF SERVICE, IMPROVING THE QUALITY OF LIFE AND DEFENDING RIGHTS

These data are the frequency analysis results from data collected from the self-administered questionnaire in the APAEs of the random sample. They consider the three dimensions of the institutional mission of the APAEs: provision of service, improving the quality of life of PWID, and defending their rights.

Regarding the provision of services, we found that in the administrative and financial organization of APAEs, fundamental for a good provision of services, there is a weakness in the people management process (recruitment/selection, training/development, and performance evaluation). The data show that all APAEs had lower completion percentages in this process, emphasizing the lack of planning and organization of a structured program for training employees. Only 29.3% of the size 1, 20.9% of the size 2, and 44.0% of the size 3 have it.

Regarding meeting the demands of the PWID in the municipality, it appears that the APAEs are not able to meet all the demands, causing waiting lines. In APAEs that offer only one service, the waiting lines correspond to 26.8% of users. That increases to

40.3% when offering two services and 59.3% when offering all three services. That demonstrates that the greater the number of services offered, the longer the waiting line to join the APAEs. This waiting list is also significant because only between 60% and 65% of APAEs do not have a user's "exit door" established in the services offered, suggesting that users enter but do not leave, which reduces the service capacity of APAEs.

According to APAEs managers' perception, more than 65% of them (depending on the number of services offered) organize these services based on the needs of the PWID, identified through multidimensional assessment applied in their care plans and monitored and evaluated by validated instruments. However, the number of APAEs that measure their results is less than that of APAEs that assess their results (Table 3) with their users without using any standardized and validated measuring instrument.

TYPE OF ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS	MEASURE RESULTS	ANALYZE RESULTS
Size 1	65.9%	73.2%
Size 2	64.2%	83.6%
Size 3	67.0%	76.9%

Table 3 Percentage of Associações de Pais e Amigos dos Excepcionais that measure and evaluate results

It can also be verified that the APAEs, generally do not listen much to their users (PWID and their families) regarding satisfaction with the services provided. Still, the managers of the smaller APAEs (size 1) listen more than those of the larger APAEs that offer two and three services; then again, the APAEs offering two services listen more than those offering three services. That leads us to think that, in the managers' perception, the larger the APAE, the less they listen to users.

Regarding improving the quality of life of PWID, the promotion of inclusion in the formal labor market is not very developed in the APAEs, increasing as more services are offered. It can be seen in sizes 2 and 3, a higher percentage of APAEs which support former users (workers) placed in the labor market (44.8% and 63.7%, respectively), developing activities with these former users and employing companies, in making the necessary adjustments for the accommodation of the companies' workgroups to the presence of the difference, such as adequacy of activities of positions, jobs, awareness of the staff for insertion of PWID in the team, among others.

As for providing opportunities for PWID to participate in the community, the APAEs in Minas Gerais reach high percentages. In 100% of APAEs providing 1 type of service, PWIDs are encouraged to participate in local social activities. In those providing two services, the percentage is 97%; and, in those providing three services, it is 98.9%.

In developing personal skills, a lower percentage of APAEs carry out actions to develop independent mobility. In size 1 APAEs, this number is 58.5%; in size 2 APAEs, it is 55.2%; in size 3 APAEs, it is 65.5%. High percentages were observed about the development of care and self-care actions (82.9% APAEs size 1, 83.6% APAEs size 2 and

90.1% APAEs size 3), body language, cognition and communication (78.0% APAEs size 1, 80.6% APAEs size 2, and 93.4% of size 3).

The evidence criteria indicate that the percentages of APAEs that develop actions to stimulate social relations and interaction exceed 85%. That points to a concern, according to APAE managers, with encouraging the construction of social relations, of interaction and support networks. This concern extends to the achievement of autonomy and independent life, although it occurs slightly less than social relations and interaction issues. Activities to address these skills are carried out by more than 80% of APAEs of all sizes. Finally, more than 80% of the APAEs identify the emotional and life aspects that affect the psychological well-being and personal satisfaction of the PWID.

On the one hand, regarding the advances of the general principles of the Convention on the Rights of People with Disabilities, the actions developed aimed at respecting the PWID's dignity stand out as positive. However, the provision of legal services that guarantee their rights is still low, with percentages of 53.7%, 56.7%, and 61.5% in size 1, 2, and 3 APAEs, respectively. On the other hand, as a negative highlight, we have low percentages of participation of the PWID in political and public life, with little encouragement for the creation of representative organizations for the PWID, such as Municipal Councils for Persons with Disabilities, or their participation in the organizations of management and administration of the APAEs.

These traits demonstrate that the size of APAE has little influence on its differentiation, indicating less heterogeneity than was initially thought.

“PORTRAITS” OF ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS NETWORK IN MINAS GERAIS: CONFIGURATIONS AND DYNAMICS

Initially, we created 13 indicators referring to the three dimensions of the statutory mission of the APAEs, based on the responses of the managers of the 199 APAEs to the questionnaires sent to them. For this purpose, we used the Statistical Package for Social Sciences (SPSS). The APAEs will use these indicators to follow up, monitor, and evaluate the actions that make up the *effectiveness indices* and the *efficiency index* of APAEs network in Minas Gerais.

For the dimension of the *provision of service*:

1. The administrative and financial organization indicator measures APAE's performance in the four basic functions of administration: planning, organization, direction, and control. They are composed of three evidence criteria that measure the institution's efficiency.
2. The installed capacity indicator measures APAE's capacity to meet the demands of people with intellectual disabilities in the municipality. They are composed of three evidence criteria that measure the institution's efficiency.
3. The service quality indicator measures APAE's services organization according to the need to support people with intellectual and multiple disabilities. They are composed of three evidence criteria that measure the institution's efficiency.
4. The results indicator measures the individual results of APAEs' services offered to people with intellectual and multiple disabilities. They are composed of three evidence criteria that measure the institution's efficiency.

5. The user satisfaction indicator measures the satisfaction of APAE's users (persons with intellectual disabilities and their families) of the services offered. They are composed of three evidence criteria that measure the institution's efficiency.
6. The innovation indicator measures APAE's ability to prospect and use innovative assistive technologies. They are composed of three evidence criteria that measure the institution's efficiency.

For the dimension of *improving the quality of life*:

7. The employment indicator measures APAE's activities that support the inclusion of people with intellectual and multiple disabilities in the formal labor market. They are composed of three evidence criteria that measure the institution's efficiency.
8. The community integration indicator measures APAE's actions that provide people with intellectual and multiple disabilities opportunities to participate in community activities. They are composed of three evidence criteria that measure the institution's efficiency.
9. The personal skills indicator measures APAE's activities supporting personal, productive, and leisure experiences to people with intellectual and multiple disabilities. They are composed of three evidence criteria that measure the institution's efficiency.
10. The social relations and interaction indicator measures APAE's activities that support people with intellectual and multiple disabilities to build interpersonal and social relationships. They are composed of three evidence criteria that measure the institution's efficiency.
11. The self-determination and independent living indicator measures APAE's activities that support the autonomy and independence of people with intellectual and multiple disabilities. They are composed of three evidence criteria that measure the institution's efficiency.
12. The psychological well-being and personal satisfaction indicator measures APAE's activities that promote self-concept and the perception of emotional and life situations of people with intellectual and multiple disabilities. They are composed of three evidence criteria that measure the institution's efficiency.

For the dimension of *defending rights*, the following indicator was created:

13. The defending rights indicator measures APAE's development, promoting people with intellectual and multiple disabilities to participate in political and public life. They are composed of 18 evidence criteria, of which nine measure the efficiency and nine measure the institution's effectiveness.

We performed the cluster analysis using the Euclidean distance to associate the APAEs into four clusters based on these indicators. This experience resulted in a mega cluster formed by almost all the APAEs in the sample (196) and three others composed of a single APAE. This result denoted the existence of great homogeneity for almost all APAEs in Minas Gerais, regardless of their size. This homogeneity remained when using the Euclidean quadratic distance and/or trying to reduce the number of clusters.

CLUSTER CONFIGURATIONS OF ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS NETWORK IN MINAS GERAIS

The use of cluster analysis pointed to a homogenization of the group of APAEs, making it impossible to separate them by different levels of effectiveness and efficiency. Thus, it was decided to group the APAEs using a typological classification test based on the quartile analysis of the indices of effectiveness and efficiency, whose values vary between 0 and 27 points, minimum and maximum values of effectiveness or efficiency possible to be attributed to each APAE. The results of the quartile analysis allowed us to

group the APAEs into eight groups (clusters) under the scores obtained and their positioning in a given quartile, as shown in Table 4.

QUARTILES	25%	50%	75%	100%
EFFECTIVENESS INDICES	0-14	15-18	19-22	23-27
EFFICIENCY INDICES	0-16	17-21	22-24	25-27
LEVELS	Low	Average	High	Very high

Table 4 Quartile distribution of index scores and their levels of effectiveness and efficiency

DESCRIBING THE ASSOCIAÇÕES DE PAIS E AMIGOS DOS EXCEPCIONAIS

This item presents the various scenarios of the APAEs, based on the eight clusters, four of which presented symmetries between the attributed qualitative levels of effectiveness and efficiency and another four dissymmetries between these levels. Cluster 1 has the largest number of APAEs (36) and has low effectiveness and efficiency measures. It is followed by clusters 2, 3, and 4 presenting respectively, 28 APAEs with very high effectiveness and efficiency, 18 with high effectiveness and efficiency, and 23 with very high effectiveness and efficiency. There were more APAEs in this group with symmetry between effectiveness and efficiency: 64 between low and medium effectiveness and efficiency and 41 between high and elevated effectiveness and efficiency. Clusters 5,6,7, and 8 show asymmetry between effectiveness and efficiency. At the lowest levels are clusters 5 and 6 (17 APAEs with varying effectiveness and low efficiency, and 18 with low effectiveness and varying efficiency). At the highest levels, clusters 7 and 8, there are 35 APAEs with average effectiveness and high efficiency and 24 with high effectiveness and average efficiency. In the group of APAEs that present asymmetric levels of effectiveness and efficiency, there are more APAEs with average and high effectiveness and efficiency (59), and 35 APAEs that showed low effectiveness or low efficiency, as shown in Table 5 below.

CLUSTERS	EFFECTIVENESS AND EFFICIENCY LEVELS	FREQUENCY
1	Low effectiveness and efficiency	36
2	Average effectiveness and efficiency	28
3	High effectiveness and efficiency	18
4	Very high effectiveness and efficiency	23
5	Varied effectiveness and low efficiency	17
6	Low effectiveness and efficiency	18
7	Average effectiveness and very high efficiency	35
8	Very high effectiveness and average efficiency	24
Total	-	199

Table 5 Distribution of Associações de Pais e Amigos dos Excepcionais by cluster and levels of effectiveness and efficiency

Analyzing the territorial distribution of APAEs by clusters across the 12 administrative regions of the state of Minas Gerais, it is possible to verify a large dispersion (Figure 1).

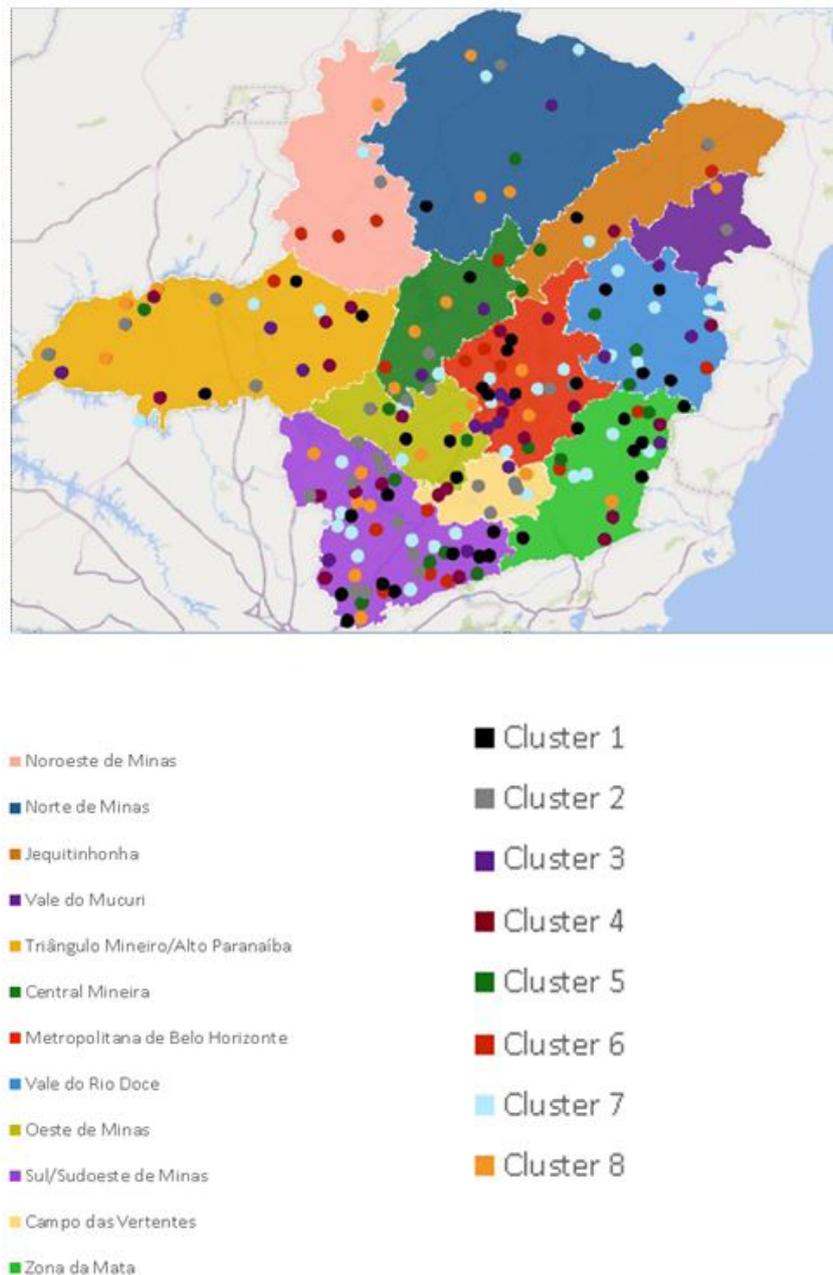


Figure 1 Territorial distribution of the eight clusters

APAEs with low effectiveness and efficiency (cluster 1) are concentrated in the metropolitan regions of Belo Horizonte and Central de Minas. From there, they extend to Vale do Rio Doce and Zona da Mata regions, extending to the South of Minas Gerais.

Cluster 2 APAEs, on the other hand, with average effectiveness and efficiency, present greater territorial dispersion, extending across the northern regions: Jequitinhonha,

Mucuri Valley, Northwest and Triângulo Mineiro/Alto Paranaíba, descending to Campo das Vertentes and Sul de Minas. APAEs that, in the opinions of their managers, present better and symmetrical measures of effectiveness and efficiency (clusters 3 and 4) are more concentrated in the Central Mineira region, passing through the metropolitan regions of Belo Horizonte and Campo das Vertentes until they reach the Triângulo Mineiro/Alto Paranaíba and the South of Minas.

Analyzing these clusters, which show symmetry between the measures of effectiveness and efficiency based on the territorial category, we observe that the APAEs in the state's poorest regions (Jequitinhonha and Vale do Mucuri) are located in the average effectiveness and efficiency stratum and not in the lowest stratum. That leads us to consider two possibilities: either the understanding of effectiveness and efficiency is different in these regions, or the systems in which these APAEs are located are less complex, allowing them to achieve greater effectiveness and efficiency measures. The North of Minas, another poor region of the state, also has APAEs with the lowest symmetric measures (low and average effectiveness and efficiency).

The regions of the South of Minas Gerais, Triângulo Mineiro/Alto Paranaíba and Metropolitana de Belo Horizonte also draw our attention. These are more prosperous regions of the state, in which APAEs of all levels of effectiveness and efficiency are located, from the lowest to the highest, showing significant organizational heterogeneity among them in these regions. The regions of Zona da Mata, Central Mineira, Oeste de Minas, Campo das Vertentes and Vale do Rio Doce also present a variety of APAEs with different levels of effectiveness and efficiency. However, they are more concentrated between the low and average strata. The APAEs in the Northwest of Minas Gerais do not show much symmetry between the two effectiveness and efficiency measures, happening in only one of them (average effectiveness and efficiency).

When looking at those clusters that present asymmetries between the two measures of effectiveness and efficiency, we see that they are present in all state regions. However, the regions of the South of Minas; the metropolitan area of Belo Horizonte; North of Minas; Mucuri Valley; the Central part of Minas; West of Minas; Zona da Mata and Triângulo Mineiro/Alto Paranaíba have the majority of APAEs with one of the two measures at the highest stratum. The regions in the Northwest of Minas Gerais and Jequitinhonha have most of the APAEs with one of the measures of effectiveness and efficiency in the lowest stratum. Finally, the regions of Vale do Mucuri and Campo das Vertentes, with one and two APAEs, respectively, present asymmetric levels of effectiveness and efficiency.

Following the configuration of the eight clusters determined by the quartile distribution of the values of the effectiveness and efficiency indices, we sought to relate these indices to the variables considered in the study: three external variables (number of inhabitants per municipality; GDP per capita and estimated population of PWID in the municipality) and two internal variables (number of users and number of employees).

We started by using the Pearson correlation coefficient, verifying that there is no statistically significant correlation between most external and internal variables and the effectiveness and efficiency indices (Table 6).

VARIABLES	EFFICIENCY INDEX	EFFECTIVENESS INDEX
Municipal population	-0.024	-0.063
Municipal gross domestic product per capita	0.096	0.018
Estimated population of people with intellectual disabilities in the municipality	-0.026	-0.064
Number of users per Associações de Pais e Amigos dos Excepcionais	0.117	0.095
Number of employees per Associações de Pais e Amigos dos Excepcionais	0.182*	0.115

Table 6 Pearson correlation coefficients

Note. **correlation is significant at the 0.01 level (two ends); *correlation is significant at the 0.05 level (two ends).

Only one internal variable is statistically significantly associated with the efficiency index. The variable “number of employees”, whose value of the Pearson correlation coefficient is equal to 0.182, shows a weak association between this variable and the efficiency index. Such correlation value means that the more employees they have, the more efficient the APAE will be. However, the effectiveness and efficiency indices are strongly associated with the value of the correlation coefficient of 0.795, revealing that the greater the effectiveness, the greater the efficiency, and vice versa. That means that the most effective actions tend to be more efficient, and the least effective ones tend to be less efficient.

Despite the results presented above, we decided to advance in the analysis by building two multiple linear regression models, in which the effectiveness and efficiency indices were included as dependent variables and the external and internal variables introduced as independent variables (municipal population; GDP per capita; the estimated population of PWID; the number of users and number of employees). From these models, we observed that the coefficients of determination (R^2) were 0.027 when considering the effectiveness index as a dependent variable, and 0.054 when the dependent variable considered was the efficiency index, that is, in both cases showing that the independent variables explain little or nothing for the variations that occurred in the two indices. Therefore, the independent variables: population of the municipality, GDP per capita of the municipality, estimated population of PWID, the number of users and employees of APAE — are not adequate to explain the variations in the levels of effectiveness and efficiency of the APAEs in Minas Gerais.

The fact that this model has no explanatory capacity raises two issues: either the managers’ understanding of the efficiency and effectiveness indices varied a lot, with the APAEs network in Minas Gerais showing different understandings of the questions asked in the questionnaire; or, the understanding and explanation of efficiency and effectiveness models in the Minas Gerais APAEs is based on other, unknown variables that can be qualitative rather than quantitative as the ones used in this study.

FINAL REMARKS

Regarding the objectives described in their mission, this study's results point to a certain homogeneity among the APAEs in the state of Minas Gerais. As we analyze APAE managers' perception of their mission based on the three dimensions: offering of services, improvement in the quality of life of the PWID, and defending the rights of these individuals, we conclude that the most prevalent dimension in the daily actions of all the APAEs, regardless of their size, is that of improving the quality of life. There is a centrality of these organizations serving the subject with disabilities, with their more significant investment in technical and non-administrative personnel. The low investment in administrative staff may influence the provision of some data by APAEs in the official systems of the Brazilian State as we realized that a significant number of APAEs did not report the number of users served by the existing services.

The present study also points to the need to expand public policy aimed at people with disabilities in the state of Minas Gerais. When we examine the estimated population of people with intellectual disabilities, most of the APAEs care for a percentage below 50% of this population. On the other hand, a significant percentage of waiting lists point to a population without assistance from APAEs or any other service in the municipality. This situation is aggravated by APAEs' difficulty in disengaging people with intellectual disabilities from their services.

Finally, it is worth noting the small participation of users (people with intellectual disabilities and their families) in defining the services provided by APAEs. In addition, it was not possible to draw a quantitative explanatory model that could measure the efficiency and effectiveness of APAEs from Minas Gerais. A qualitative understanding of the systemic dynamics of each cluster should be conducted, highlighting traits that contribute to an accurate, distinct, and coherent "picture" of each of them.

Translation: Laura Mendes Loureiro

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