USE OF INDICATORS IN THE EVALUATION OF THE PERMANENT EDUCATION SERVICE: REFLECTION OF THE QUALITY PILLARS

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Objective: to reflect on the use of indicators in the evaluation of the quality of the continuing education service. Method: descriptive study, reflective analysis of literature, in the light of the quality pillars. Results: the evaluation of the quality of the permanent education service refers to the monitoring of indicators associated with the attendance of professionals in the proposed activities, abandonment in following training and satisfaction with activities. Other indicators are related to the permanent education service itself, through the monitoring of the cancellation rate of actions, average training time and the value invested in the planning of actions. Thus, the evaluation of the indicators based on the pillars of quality of efficacy, effectiveness, efficiency, acceptability, legitimacy and equity is able to assist in the planning and analysis of the training offered. Conclusion: the use of indicators in permanent education favors the retrospective and prospective analysis of the activities by the professionals themselves and by the permanent education service.

Introduction

The current model of Permanent Education in Health (PEH) was originated in Latin America and resulted from the need for adjustments in the contemporary professional mold. Before exclusively focused on technical skills and productive performance, this current approach demands training with a comprehensive proposal that considers political, ethical and social aspects. However, this new profile requires a constant evaluation of PEH service itself, by reflecting the quality of its work process. This action can be guided by indicators, which help in understanding situations, trends or changes over time. In this way, they can subsidize improvements to the service.

The indicators can be considered as quantitative measures used to re-evaluate, redesign and reorganize service activities, offering subsidies for decision making, so as to help improve the quality of the service provided. They can contribute to the understanding of complex phenomena, making them quantifiable, in order to analyze if the work process and proposed objectives are being achieved.

On the other hand, its analysis can reflect on qualitative aspects, since interpretation can lead to better management, efficiency and quality of PEH as a service. Avedis Donabedian has brought contributions inherent to this evaluation of quality in health institutions that can be applied to PEH. He tried to measure the structural conditions, from the physical parameters and personnel training, through the application of the Systems Theory in the relation between resources, process and result applied in the construction of indicators. It is considered that the quality of the PEH service can be evaluated quantitatively by indicators and qualitatively by the analysis of their implications on the pillars of efficacy, effectiveness, efficiency, acceptability, legitimacy and equity.

The process of analysis of these indicators leads, therefore, to the judgment of answers to managerial questions in the PEH service, which enables the implementation of improvement actions based on their quality standards. In this way, work processes can be outlined and evaluated after their implementation. However,
there is still no presentation or elaboration of criteria in the literature for the construction and analysis of these indicators for the PEH service. So, which are the indicators applicable to the evaluation of the quality of the PEH service?

The objective of this study is to reflect on the use of indicators in the evaluation of the quality of the permanent education service.

**Method**

A descriptive study, reflective analysis type, in the light of Avedis Donabedian’s quality pillars. It emerged based on reflections and in-depth readings of the assumptions of structure, process and results, as well as their implications on the pillars of service quality: efficacy, effectiveness, efficiency, optimization, acceptability, legitimacy and equity\(^{(5)}\).

The integrative revision strategy was initiated, but, due to the incipiency of the studies, we arrived at a reflexive study supported by the proposed theoretical framework.

**Results**

The proposition of PEH actions must respond to the service’s need in order to transform reality. The reflection on the quality pillars enables the conceptual definition proposed by Donabedian\(^{(5)}\), as well as the operational one, understood as the way these actions are measured in the service of PEH (Chart 1).

**Chart 1** – Conceptual definition, according to the quality pillars proposed by Donabedian, and operational definition adapted to Permanent Education in Health

<table>
<thead>
<tr>
<th>Quality Pillar</th>
<th>Conceptual definition</th>
<th>Operational definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy</td>
<td>The best that can be done in the most favorable conditions, given the patient's condition and kept constant the other circumstances.</td>
<td>Annual planning of activities under ideal conditions, measured based on the annual total of actions and analyzed by the activities actually offered through the annual average of actions carried out, cancellations and average time of training.</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Improvement in health achieved or achievable in the usual conditions of daily practice.</td>
<td>Relations between pre and post-activity evaluations measured by the effectiveness rate of the actions carried out.</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Measure of the cost with which a given improvement in health is achieved.</td>
<td>Effective cost of shares based on total annual investment.</td>
</tr>
<tr>
<td>Optimization</td>
<td>It becomes relevant as the effects of health care are not assessed in absolute terms, but in relation to costs.</td>
<td>Relation between effectiveness and efficiency based on the relation between the rate of improvement and the cost invested.</td>
</tr>
<tr>
<td>Acceptability</td>
<td>Synonym for adapting care to the desires, expectations and values of patients and their families.</td>
<td>Contentment with the proposed activities based on the abandonment in following trainings and the satisfaction of the professionals.</td>
</tr>
<tr>
<td>Legitimacy</td>
<td>Acceptability of care in the way it is viewed by the community or society in general.</td>
<td>Receptivity of the professionals with the activities, reflected based on the frequency and average of the proposed activities.</td>
</tr>
<tr>
<td>Equity</td>
<td>The principle by which one determines what is fair or reasonable in the distribution of care and benefits among members of a population.</td>
<td>Average of the training offered by the professionals, the institution’s management and the Permanent Education in Health itself.</td>
</tr>
</tbody>
</table>

Source: Create by the authors.
These definitions have made it possible to propose that PEH action monitoring indicators be built from two perspectives: based on the professionals involved in the actions and the management of the service. The indicators for evaluating and carrying out actions that consider aspects related to the professionals are presented in Chart 2.

**Chart 2** – Indicators for monitoring the actions of Permanent Education in Health based on the professionals involved in the actions and management of the service, according to Concept and Calculation.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Concept</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at the proposed activities</td>
<td>Relation between the number of professionals present in the proposed activity and the total number of professionals in the institution.</td>
<td>Number of professionals present Total professionals of the institution</td>
</tr>
<tr>
<td>Attendance at proposed activities by professional category</td>
<td>Relation between the number of professionals present per professional category in the proposed activity and the total number of professionals in the institution.</td>
<td>Number of professionals present per category Total professionals of the institution</td>
</tr>
<tr>
<td>Average of activities by professionals</td>
<td>Relationship between the number of professionals in the institution and the number of proposed actions.</td>
<td>Number of professionals in the institution Number of proposed actions</td>
</tr>
<tr>
<td>Abandonment in following trainings</td>
<td>Rate of professionals who gave up attending the action.</td>
<td>Number of professionals in the institution Total professionals of the institution</td>
</tr>
<tr>
<td>Satisfaction of the professionals with the activity</td>
<td>Number of professionals satisfied with the activity and the total present in the activity.</td>
<td>Number of satisfied professionals Total professionals present in the action</td>
</tr>
</tbody>
</table>

Source: Create by the authors.

These indicators enable the expected indices and those obtained in each action proposed by the PEH service to be analyzed and considered in the planning of activities *a posteriori*. Likewise, the analysis of factors inherent to the service must be considered and evaluated, according to Chart 3.

**Chart 3** – Indicators of the service of Permanent Education in Health, according to concept and calculation (continued)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Concept</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual total of proposed actions</td>
<td>The sum of the actions carried out in one year.</td>
<td>Action 1+ action 2... action n</td>
</tr>
<tr>
<td>Annual average of actions carried out</td>
<td>Relation between the number of actions carried out and the number of actions proposed.</td>
<td>Number of actions proposed Number of actions carried out</td>
</tr>
<tr>
<td>Average training time</td>
<td>Relation between the number of hours of training and the number of activities carried out.</td>
<td>Number of hours of training Number of actions carried out</td>
</tr>
<tr>
<td>Effectiveness of the actions carried out</td>
<td>Relation between pre and post-test score and total number of participants.</td>
<td>Score obtained in the evaluation Number of professionals present</td>
</tr>
<tr>
<td>Cancellation of the actions</td>
<td>Relation between the number of cancelled actions and the total of planned actions.</td>
<td>Number of cancelled actions Total of planned actions</td>
</tr>
</tbody>
</table>
**Chart 3** – Indicators of the service of Permanent Education in Health, according to concept and calculation (conclusion)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Concept</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total annual amount invested</td>
<td>Total amount invested annually in the actions.</td>
<td>Amount in action 1 + Amount in action 2, ... amount of action n</td>
</tr>
</tbody>
</table>

Source: Create by the authors.

By analyzing the management indicators of the PEH service, the result obtained can be analyzed based on what was planned. With this, new strategies can be devised for the next year of activities, considering the previous result.

With the application of the result of the indicators raised from the professionals and the service, it becomes possible to use it as a tool for PEH work, as illustrated in Figure 1.

**Figure 1** – Application of the indicators in the work process of Permanent Education in Health

The construction of indicators in light of Avedis Donabedian’s quality pillars may interfere in the planning of actions based on situational diagnosis. After the realization of the actions, the evaluation considers the result obtained, which promotes a new situational diagnosis to be used in future planning. Thus, the process of analysis of these indicators becomes cyclical, in order to plan and evaluate based on the pre-established indicators of the PEH service.

**Discussion**

For the managerial practice of the service in permanent education, it is necessary to reflect the factors related to the organizational structure of the institution in the assistance, educational and management policies in health and the profile of human resources. In addition, it is necessary to evaluate the programs and work proposals, financial and physical resources available and the expectations of the assisted clientele.

These proposals will occur making use of the triad structure (human and material
resources), work process and results, through which the indicators are elaborated, evaluated and qualified. There is a Donabedian reflection of emphasis on metrics and quality measures in health through its pillars(2). For that purpose, differentiated reflections from professionals and from the service itself may lead to specific analyses of PEH indicators. Hence the need for the formulation of separate indicators and detailed discussions, as follows.

**Analysis of indicators related to the professional**

The proposed indicators from the perspective of the professionals take into account the attendance and the average in the activities carried out, the abandonment and the satisfaction of those involved. These indicators can interfere with the pillars of acceptability and legitimacy(7).

Acceptability translates into the existence of themes based on the wishes of users and daily work and can be motivations for the realization of educational practices. This means that if only the demands of the institution and the PEH point out to which educational activities need to be accomplished, the satisfaction of the professionals can be compromised. Based on this, comes the greater need for dialogue with the demands pointed out by the professionals, as well as more assertive dissemination strategies, aiming at increasing the effectiveness and acceptability of actions(8).

Likewise, the lack of motivation with the proposed activities needs to be measured by the abandonment in following the trainings. This leads to the need to stimulate the professionals in the educational process and in the responsibility with the qualification and training itself. In this sense, the increase of the workload of the professionals can bring the redesign of the work and repercussions in the discontinuity of the proposed activities. Studies also point out difficulties in carrying out PEH actions in health institutions, mainly due to the low adherence of professionals and resistance in the apprehension of new knowledge(9).

These indicators related to the professional bring the thought of articulation of strategies towards the inclusion of the educational process in the daily work. A set of actions can be articulated by a clear relation between the professionals that constitute a health institution, the PEH service and the institutional management, both in the sense of flexibilizing the activities schedules and in their planning. These interventions can increase adhesion rates and improve the outcome of the actions(10).

The educational actions need to relate to the reality of the assistance units, so that they occur in the context of work and have the availability of schedules appropriate to the scales of professionals. For this, there is a need for institutional support, an issue that goes through the adequacy of the physical environment and human resources, but also the need for planning, coparticipation, commitment and availability of the heads and work teams of the PEH service.

Furthermore, legitimacy is a determining pillar in the reflective process in PEH, so that it interferes in the relation between professionals and the educational process provided. Thus, as PEH is viewed by professionals, it needs to be included in the evaluation. In the attempt to measure quality, it may be fragile to consider individualized formative evaluation factors, but the numerical data in its amplitude may help in the general evaluation and in proposing changes to new activities with the same theme(11).

**Indicators related to the Permanent Education in Health service**

The PEH service management indicators include the total number of activities performed, the annual average number of actions, and the average time for each training session. In this way, they enable the global evaluation of the PEH activity offer based on the analysis of its efficacy, effectiveness, efficiency, optimization and equity. Although they do not evaluate the quality and effectiveness of the educational action proposed, they make it possible to dimension the planning of future actions, considering the
available resources, as well as the analysis of the activities offered.

In this sense, the indicators of the PEH service emerge mainly from the ability to plan activities. This includes cost planning, work organization, design of actions already associated with local difficulties, communications, and decision making, contributing to the improvement of structures and institutional work process\(^{(12)}\).

Thus, the annual total of proposed actions and the amount invested depends on the elaboration of a previous activity plan that considers the possibilities of the institution.

In exchange, the analysis of its effectiveness considers the scope of the action in that particular group(s) of professional(s) after the realization of the activities. One of the ways of doing this evaluation is through the application of pre and post-tests questionnaires, which measure comparatively the hit coefficient of the participants. Evaluating basic knowledge with the support of pre-tests can help in the evaluation of knowledge changes and help in the comprehension of the real scope of the activity\(^{(13)}\). This evaluated knowledge can be a strategy for behavior change and, although it cannot be used in an isolated way, it has the potential to serve as a basis for the knowledge acquired in the action.

Cancellation of activities is another indicator of the PEH’s interest. Planning depends on several internal or external factors that directly interfere with the effective realization of the actions. Thus, activities depend on human and material resources that need to be previously analyzed, as well as on the prior preparation of strategies adapted to the different learning styles, the participants’ needs, and the structure offered by the institution. In case one of these aspects becomes unbalanced, the cancellation of the activity may occur and the reason needs to be analyzed and considered by the service in future planning\(^{(14)}\).

In this sense, this indicator can directly interfere with the quantity of actions, measured by the annual average of actions carried out and the average time of training and, consequently, its efficacy. This analysis is important because it enables comparison over time and realizes the progress of the service. The offer of activities per procedures or per professional categories requires analysis of the need to safeguard the multiprofessional and interdisciplinary character of PEH and also needs to be evaluated continuously. The need of learning in the daily practice time of the work is also added, in order to allow a greater articulation between the teaching and the practice carried out\(^{(15)}\).

On the total annual invested amount indicator, financing is a factor that directly interferes in the PEH service efficiency. This is because it allows for the autonomy of actions and avoids verticalization, as well as brings the possibility of adjusting proposals to the needs of the service\(^{(16)}\). Therefore, the investment profile needs to be continuously analyzed in order to evaluate the amount invested related to the institutional profile and the needs of the service.

Individual analysis of these indicators may point to information of interest in the PEH service. However, the relation between them can lead to the analysis of an important profile and associate cause and effect of the need for changes in the service. The reduction in training, whether by the annual total, average time or cancellation rate, can be directly related to financing. The low satisfaction of the participants may be related to the attendance in the trainings and to the abandonment in following the trainings. Therefore, the adoption of more than one indicator can be important and help in the evaluation and planning of actions in the service.

**Evaluation of service quality indicators of Permanent Education in Health**

The quality of PEH is able to interfere with elements associated with its management practice as a service. The analysis of its indicators should imply in: efficacy, when reaching the proposed goals; efficiency, in order to use the rational use of resources; effectiveness, when analyzing its social results; equity, when determining what is fair or reasonable in the distribution of
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resources and benefits; and satisfaction, when associating expectations and contentment of professionals\(^{(5,10)}\).

By grouping information of interest, the consolidation of aspects of institutional and professional reality, through indicators, can improve the management of PEH and assist in the development of internal policies. Furthermore, it becomes possible to compare the information before and after the results obtained with the activity, as well as to subsidize the evaluation of the actions that justify the prevision and the provision of proposals, which implies in the analysis of the quality of the PEH service\(^{(17-18)}\).

Thus, this analysis has the function of verifying the improvement of actions, as well as the need for (re)orientation and (re)conduction of processes. Through the proposed indicators, both professionals and the service are important sources of information for the PEH service, so that they reflect the characteristics of institutional and daily practices.

On the other hand, despite contributions in the construction and evaluation of indicators, Donabedian assumptions may need further reflection in supporting PEH. The reflection on the quality of the service of the health institution and the enhancement of the assistance are of necessary evaluation, but they transcend the possibility of individualized evaluation of the PEH service.

The reflection on the impact of the trainings may need the articulation of other sectors, such as the Hospital Infection Control Commission (HICC), Occupational Health Service of the Worker, Quality Sector, among others. Therefore, one can reflect on the scope of PEH based on the improvement of indicators from other services, which further contributes to the implications of PEH actions. For example, hand washing training can directly interfere with the reduction of hospital infections and needs discussions with HICC, both in the survey of the need and in its subsequent evaluation.

Finally, this study is limited to reflecting on the contributions of the Donabedian quality pillars of PEH in the construction and evaluation of its indicators. However, it is understood the wide range of service actions and their interference in other health sectors and ratifies how the reflection of their practices needs to be considered in the qualification of professionals and the improvement of the assistance provided.

**Conclusion**

Reflections on the use of indicators in the evaluation of the quality of the permanent education service were possible and can contribute to the situational diagnosis in the planning of actions and their evaluation through the analysis of quality in efficacy, efficiency, effectiveness, equity and satisfaction. In this way, they help in the understanding of the potentialities and fragilities in the conduction of activities and may provide improvements in future planning and organization. To do so, it considers the implications for professionals and for the PEH service itself. However, new quantitative and qualitative studies may be necessary in order to validate and apply these indicators in order to contribute to the visibility of PEH and help analyze its demands.

**Collaborations:**

1 – conception, design, analysis and interpretation of data: Graziele Ribeiro Bitencourt;

2 – writing of the article and relevant critical review of the intellectual content: Graziele Ribeiro Bitencourt, Andreia Fabia de Melo Ferreira, Maria Helena de Souza Praça do Amaral, Stella Maris Gomes Renault, Jaqueline Olímpio da Silva and Katerine Moraes dos Santos;

3 – final approval of the version to be published: Graziele Ribeiro Bitencourt, Andreia Fabia de Melo Ferreira, Maria Helena de Souza Praça do Amaral, Stella Maris Gomes Renault, Jaqueline Olímpio da Silva and Katerine Moraes dos Santos.
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