Dynamic model for assessment and family intervention

Impact on families health gains

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Summary
The current Primary Health Care reform is focused on effectiveness patterns, targeted at ensuring the best possible health gains for its users. In regard to this approach the aim is to assess health gains as a result of the implementation of the Dynamic Model for Assessment and Family Intervention.

For this quantitative study, the focus of attention areas described in the operative dimensions of this Nursing Model. Data collection was performed based on the information produced by Primary Health Care Nurses, through the Information System in use. The family health gains indexes computed into the Microsoft Office Excel 2007 were used for data processing and analysis.

In the structural dimension, the major health gains were found in the residential house (50%). In the development dimension, the interventions targeted at family planning were found effective for 85.19% of the families, with the adaptation to pregnancy showing the lowest rates in health gains (50%). As to the functional dimension, the highest rates in health gains were found for an adequate caregiver role in 33% of the families, whilst in the family process, health gains rates were at 5.56%.

The implementation of the MDAIF had a positive impact on health gains outcomes for families, fostering the development of assessment and family intervention competencies as well as the identification of training needs in specific intervention areas.

KEYWORDS: PRIMARY HEALTH CARE; FAMILY NURSING; NURSING MODEL; NURSING PROCESS; FAMILY HEALTH; HEALTH STATUS INDICATORS; CLINICAL SKILLS.

Introduction

The Primary Health Care system in Portugal (PHC) dates back to the 70's, and ever since it has been evolving from an individual care model to family and community care models[1]. Nowadays, primary healthcare is provided in Care Units segmented into different healthcare services: Family Healthcare Units and Personalized Care Units provides care to Families and individuals; Public Health, which according to the study conducted[2] on family healthcare units in Portugal, revealed better health outcomes; Units and Community Care Units, which provide care to Communities and risk groups. The focus of care on families implies competence and effectiveness of professionals in the provision of health care. In what health care is concerned, the Portuguese society developments urge for more specialized and differentiated nursing care and more complex support. Thus, the Portuguese Order of Nurses (Ordem dos Enfermeiros) responded to political demands, such as the inclusion of the family as the focus of nursing care, following international directives of Health 21, considering the conceptual framework of health policies for every member state in the European Region of the World Health Organization (WHO) and the Munich Declaration, a joint declaration signed by Portugal and other Europe's member states. Thus, considering the process of creating the new specialty of Family Health Nursing, the profile of Specific Skills of the Nurse Specialist in Family Health Nursing (endorsed by the College of Community Nursing Specialty of the Portuguese Order of Nurses – Ordem dos Enfermeiros), the Official Law Regulation Publication[3] was published, which described the specific skills of specialist nurses in family health nursing: to provide care for the family as the core center of care; to provide specific care at

the different stages of the family life cycle at primary, secondary and tertiary levels.

The Dynamic Model of Family Assessment and Intervention[4] (MDAIF) underlined by the family care practices was co-developed and validated by research teams working in the Primary Health Care context. In 2011 the Portuguese nursing profession regulator decided to adopt MDAIF as the theoretical framework of Family Health Nursing intended to meet the needs of the Portuguese nurses responsible for family care. The MDAIF development emerged from a action-research work conducted with family nurses supported on family nursing assumptions, and by the experiences and episodes related with nurses in te process of interaction with families. This work enabled the creation of knowledge based on interventions and leading to effective changes in nurses' practices. It is focused in relevant fields of family health nursing, using a multidimensional matrix centred in the dimensions: structure (household income; residential building; safety measures; water supply; household pets); development (marital satisfaction; family planning; adaptation to pregnancy; parental role), and functioning of the family system (caregiver role; family process). MDAIF is based on an operative and dynamic structure which intends to be flexible and interactive, allowing nurses to suggest interventions targeted at the specific identified families' care needs. The MDAIF provides a wide framework for family assessment and interventions and suggests actions leading to best practices. It differentiates itself from other assessment models and family interventions through its operational definition of concepts, which allows a generalization of proposals that can be empirically and effectively tested. We highlight this operational component compared to other theoretical referential in family nursing as an effective contribution to the systematization and to the adequacy of nursing practices targeted at families.

The primary health care is the basis of the healthcare system, emphasizing a network intervention and the implementation of multidisciplinary teams, underlying a centered care approach on the family and on the life cycle. Within this framework, the implementation of programmes of family health nursing is considered essential for the development in this area[5] fostering the acquisition of new competencies and consequently better health outcomes. The family health nursing has been developing in the theoretical domain reflected in models and theories of assessment and family interventions, in research through a change in the existing paradigm, emphasizing the family as the core study subject[4].

Monitoring and evaluating the impact of the studies is fundamental for the transfer of knowledge to the clinic[5]. The implementation of the MDAIF requires a training process adjusted to the nurse's needs enabling the transformation of knowledge into action, through structured learning processes focused on technical approaches to families and integrative methodologies. The studies on the MDAIF implementation[6,7,8], enabled an in-depth understanding of this specific model as a promoter of the family nurse role, contributing to the development of interdisciplinary work methodologies of family health teams. The improvement of the effectiveness concerning interventions will endow, on one hand, a continuous enhancement in nursing care quality and, on the other hand, an improvement of the levels of assistance provided to the population, taking into account the mission of the primary health care units. The adoption of this model by nurses will allow the documentation of care provided, which can be used as a guideline to nurses in relevant areas of the family's care process.

The assessment of the impact of these practices underlying the MDAIF, based on the effectiveness indicator definition (which allows measuring health gains arising from the interventions developed with families), will largely contribute to the improvement of innovative practices as a decisive impetus for the new Primary Health Care organization.

The areas of attention included in the multidimensional matrix of MDAIF, are the nurses guidelines for the clinical decision-making in all the stages of the nursing process. The evaluation of the health gains as a result of nursing interventions, grounded by the developed health indicators based on this matrix, enable to answer the following questions:

What are the health gains for the families cared by nurses, based on the theoretical support of the MDAIF, within the areas of attention of the structural dimension?

What are the health gains for the families cared by nurses, based on the theoretical support of the MDAIF, within the areas of attention of the development dimension?

What are the gains for the families cared by nurses based on the theoretical support of the MDAIF, within the areas of attention of the functional dimension?

The current primary health care reform focuses on effectiveness standards, intended to ensure the greatest possible health gains for its users. Considering this approach, the purpose was to assess the health gains as a result of the implementation of the Dynamic Model for Assessment and Family Intervention (MDAIF) in the context of the primary health care.

Methods

This is an exploratory-descriptive study and quantitative in nature. In order to meet the objectives, and based on the MDAIF[4] as the theoretical and operational referential, the areas of attention variables described in the dimensions of the operational matrix of this model, were considered:

- Structural Dimension: household income, residential building, safety measures, the water supply and household pets.

• Development Dimension: marital satisfaction, family planning, adaptation to pregnancy and parental role.
• Functional Dimension: the caregiver role and family process.

The study was conducted within the context of a health centre of one of the regions of Portugal, targeted at families registered in the family files of 12 nurses working in this health unit, and which were recipients of care according to the MDAIF and data was computed into the Information System developed for this purpose, The Family Nurse Platform (FNP), totalling 210 families.

The information produced by the nurses and documented in the FNP was considered for data collection. The gathered data concerns the areas of attention of the MDAIF, its operational dimensions, as well as its evaluative items, including documentation relating to the diagnostic statements, interventions performed and outcomes assessment. The health gains indicators were considered, which had been previously defined within the multi-centered project involving this study (Dynamic Model for Family Assessment and Intervention: a transformative action in primary health care), describing the relation between: the number of families where there was a change in the clinical judgment (for example, from not adequate to adequate) in the diagnostics produced based on the areas of attention described in the referential (family income, residential building, safety measures, water supply and household pets, marital satisfaction, family planning, adaptation to pregnancy and parental role; the caregiver role and family process), on the number of families which diagnostics had been referred in need for interventions, considering the aforementioned areas of attention.

The data necessary to apply the formulas of the MDAIF indicators were extracted from the computer system, more specifically the global numerical indicators of responses necessary to apply the formulas of the indicators. For the data extracted the documentation relating to the evaluative data of each element of the matrix was also considered (household, type of extended family, wider systems, social status, family vital cycle) which enable an in-depth understanding of the family, as an open system, which transformational process is influenced by the different environment structural levels[4].

To calculate the number of nursing diagnoses proposed in the operative matrix of the MDAIF and for the results assessment, a period of six months was established for the analysis process and then each item described in the matrix was selected to extract the number of statements and the assessment outcomes (e.g. 1. number of nursing diagnoses "no preservation of marital satisfaction"; e.g. 2. number of records "adequate residential building").

Data collection was performed over a period of six months of nursing care. The data collected were computed into an Excel, specifically designed for this purpose. Descriptive statistics were applied with regard to the evaluation of data for the characterization of families, as well as for the calculation of the health gains indicators.

Findings

Families characterization

The majority of families included in the sample (210) are nuclear families 56.19% (119), and according to this referential (Figueiredo, 2013), it corresponds to the family constituted by man, woman or by individuals of the same gender, either married or not, with at least one biological or adopted child. An extended type of family has an expressive 20.9% (44) either as a couple or nuclear family and other relatives or persons with other ties not specifically connected to kinship or three-generation descendants.

The uniparental family emerges at the third position representing 8.10% (17), followed by the couple typology 7.14 % (15) described as the family constituted by "man and woman or partners of the same gender that may be legally married or not)", Figueiredo (2012: 74).

In what concerns the remarried families, in which at least one member of the couple has had a previous marital relationship and a child conceived from this relationship, the results show 5.71% (12).

As to the mono-parental families 0.95% (2) is mainly constituted by women and 0.48% (1) by men. The institutional family shows a similar percentage of 0.48%.

With regard to the type of relations within an extended family, the emotional support is the most representative with 28.40% (165); following by the social accompaniment 20.48% (119); the cognitive and advice guide 19.28% (112); material assistance and service 16% (93); social adjustment 8.43% (49); and finally, access to new contacts 7.43% (43).

Health gains for the families

Structural dimension

The highest impact of the nursing interventions, underlying the MDAIF, was reflected in health gains related to the residential building, whose diagnosis was changed from neglected to not neglect, in 50% of the families who showed the diagnosis of a neglected residential building. The interventions proposed to respond to the diagnosis of neglected residential building and lead to the production of health gains, refer, among others suggestions, the request and/or the orientation of families to social services, teach about the risks of a housing with poor hygiene, promote and/or strengthen the house management. Similarly the nursing interventions were effective in 42% (21) of the families who have been given Demonstrated Security Precaution, meaning that families who expressed needs in this area, were able to demonstrate knowledge about the use of heating

equipment, the use of gas equipment and knowledge about strategies of adaptation to architectural barriers. On the other hand, nursing interventions refer to teaching about the use of heating and gas equipment; negotiate on the use of heating and gas equipment. These interventions are also targeted at motivating the family to strategies of adaptation to architectural barriers and guidance on community services. It was found that the families needed guidance on the use heating equipment, more specifically on electric heaters, which included empower them about using this equipment, such as information on security check and location of equipment, which electrical cables should be distanced from any heat source; about maintaining the air circulation to avoid the risk of hypoxia due to the burning of oxygen caused by the equipment.

A Not Insufficient Family Income was expressed by 40.82% (20) of the families included in this intervention. Within the MDAIF, the suggested interventions were mainly aimed at requesting and guiding families to social services and promote the empowerment of the family about the proper management of household income. In this perspective, the family nurse, based on professional competencies, has promoted knowledge and trained families to manage their income in accordance with their expenses to comply with the basic needs of family members, on the 20 families showing health gains.

On the other hand, the lower expressiveness on health gains sensitive to nursing care in the evaluated dimension, was revealed in the area of attention related to Household Pets. Of the total formulated diagnosis requiring nursing interventions (45) – for the Neglected Household Pet, the health gains rate was set at 17.78%, corresponding to 8 families in which there was a change in the diagnose status.

Within the MDAIF, the contribution that nurses can provide to families with a diagnosis of Neglected Household Pet, include interventions such as teaching the families about vaccination and de-worming of household animals, guidance for community services, in addition to encouraging the family to perform these tasks and supervise animal vaccination.

In what concerns the water supply, the 210 families presented appropriate water supply since they were using the public water supply for human consumption and/or private water supply, with the completion of water quality control.

Development dimension

The highest health gains outcomes are for the areas of attention related to the development dimension, and occurred in Family Planning. In this area, health gains reached 85.19%, corresponding to 46 families who initially had Ineffective Family Planning and in which a change in the diagnostic status was also verified. The interventions suggested by the MDAIF underlying the actions of the family nurse to in promoting positive change in the diagnostic status, which meet the needs identified in each operative dimension showing as examples: teaching the couple on contraception methods; teaching and providing information to the couple on emergency contraception; to provide early guidance on emergency contraception; to teach, inform and train the couple on the use of contraception; to encourage the use of contraceptives, to provide contraceptives; to provide reading material; to inform/guide the couple on pre-conceptive consultation; to teach the couple about the psychologic, family and social aspects of pregnancy; to teach the couple about the woman's sexual cycle, among other aspects.

Also, health gains outcomes for the Marital Satisfaction were registered at 54.17% (26) of the sample families which had initially a diagnosis of marital satisfaction as Not Maintained. These results suggest the effectiveness of interventions developed by nurses for the majority of families showing Not Maintained Marital Satisfaction. Some of the examples of the developed interventions are; the couple's emotional expressiveness; planning family rituals, motivating the couple to engage in common activities, guidance on medical services, to encourage family therapy and psychology services.

The area of attention Adaptation to Pregnancy shows 50% (6) of health gains, for families with a subsystem couple and pregnancy, which had initially had Adaptation to Pregnancy Not Demonstrated and changed to Adaptation to Pregnancy Demonstrated. The interventions developed by nurses refer among others to informing the couples about social rights in pregnancy; to teach about the different stages of the adaptation to pregnancy; to inform/guide on the course and preparation to childbirth; to teach the couple about fetal development; to teach about the psychologic process related to post-partum; to provide family support by stimulating the couple to express their emotions.

In what concerns the parental role, the families classified in the third stage of the family life cycle (families with children in school) and that were the subject of interventions of nurses benefited from health gains in the four operative dimensions described in the MDAIF: the role knowledge, adherence behaviors, consensus, burden and conflict. The greatest expression, reflected in the change of the diagnosis status of appropriate parental role by conflict No (100%; 8); followed by the adequate parental role burden No (81.82%; 9); the adherence behaviors are demonstrated in 73.68% of families; the role consensus "verified in 66.67% (4); and finally, 59.12% (81) is registered for the knowledge of the role demonstrated.

Then there is a percentage of

59.12% (81) in health gains on the fifth stage of the family life cycle, the family with adult children. The fourth stage of the family life cycle, the family with teenage, shows 10.53% (4) families with health gains through the confirmation of demonstrated adherence behaviours.

In the context of the interventions proposed in the operative matrix of the MDAIF aiming at the effective performance of the parental role, adjusted to the stages of the family life cycle, some examples are presented: teaching and/or instruct parents about eating patterns appropriate for the child; about proper washing teeth; to promote and/or advocate strategies of functional reorganization strategies for the adaptation to the new timetables; to motivate parents to the participation in meetings and activities of the child study; to promote expressive communication of emotions; to evaluate the dimensions of conflict; to motivate the redefinition of family members roles, to renegotiate the definition of parental and family members roles; to promote the involvement of the extended family.

Functional dimension

Considering the areas of attention included in this dimension, the health gains in the context of the caregiver role are of 23.33%, whilst those who refer to the familiar process, show 5.56%.

The diagnostic caregiver role not suitable was stated by 22 of the families with a dependent family member (36), menaing 88% of families in need for nursing interventions in this area. The diagnostic criteria defined in the MDAIF (Figueiredo, 2012) for the enunciation of the caregiver role not adequate, refer to the knowledge of the role Not demonstrated, and/or adherence behaviours Not demonstrated, and/or consensus of the role No and/or role conflict No, and/or role burden Yes.

This prevalence is due to the knowledge of the role not demonstrated, essentially on the operative dimension of knowledge about "feeding self-care", specifically about the appropriate eating pattern. Also, in the operational dimension of the knowledge of the role, the areas of hygiene self-care and management of the therapeutic regimen also showed needs in nursing care. There were also families with needs in nursing care directed at the areas of hygiene self-care (6), more specifically on the knowledge on proper washing of teeth; clothing self-care (3) and drinking (3), these being due to the knowledge not demonstrated in relation to the stimulation of the dependent family member. Also concerning the self-care in the management of the therapeutic regimen (7) and on the knowledge and learning of abilities of self-administration of medication (4).

Thus, 23% of families showing health gains in the caregiver role, correspond to 7 families where there were changes relating to the knowledge of the role and/or adherence behaviours, and/or role conflict, and/or burden of the role.

Therefore, the suggested interventions to address the caregiver role not suitable, for an effective adjustment in the family, include training, education, planning, advocacy for the leisure activities of the dependent family member, for example, among others, in each knowledge area evaluated and identified with nursing care needs. Naturally, the interventions proposed in the matrix of the MDAIF also include referentiation and request from other services of the multidisciplinary team.

In what refers to the Familiar Process the health gains reach 5.56% (2) of families with the initial diagnosis of a dysfunctional family process. Positioned at a level of approach whose emphasis is given to the family system, in all its dynamics, the familiar process requires interventions that essentially involve the use of systemic communication techniques. The interventions proposed to respond to family needs in this area include: promoting expressive communication of emotions, to negotiate adaptive strategies/coping in the family, to negotiate a redefinition of roles by family members; to optimize the pattern of family ties, to guide to family therapy.

The prevalence of the dysfunctional family process was 31.58% (36). The most relevant evaluation item was related with the non-satisfaction of family members to the way feelings were expressed, which integrates the emotional communication in accordance with the operative matrix of the MDAIF. It should be noted that the dimension of the family roles also presents nursing care needs, in which the consensus of the domestic care role nor established represents 3.77% (4) of these families.

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Discussion

This diversity is the reflection of new emerging family configurations which are influenced by factors such as increased life expectancy, a decrease in birth rates, a decrease in marriages, an increase of divorce. In addition to this diversity, it is also important to consider changes in gender roles, the variety of marital relationships and the process of family reorganization.

In what refers to changes in the family structure, according to the results of the 2011 Census, the number of traditional families increased by around 11% between 2001 and

2011 (INE, 2012). The same source considers that despite its smaller relative importance, the typology of couples with children, is still predominant when comparing these two periods (2001-57%; 2011-50%), considering the other family structures, such as childless couples (2001-31%; 2011-35%); single-parent families (2001-12%; 2011-15%). In this case, the single-parent nuclear families constituted by the mother with children are the most prevalent representing more than 86% of all single-parent nuclear families. The 2011 Census also showed a significant increase in the number of remarried families (2001- 46.786; 2011- 105.764)[9].

According to the latest data from Statistics Portugal[9] in 2016 there were 4.080.230 traditional families in Portugal, the majority, 1.447.809 were families of married couples with children. Corresponding to 35.5% of nuclear families, it is possible to verify that despite the percentual decrease of this type of family, from 2011 to 2016, it remains the predominant type, showing that the prevalent type of family included in this study is in accordance with the most recent statistics.

The family mutual help relates to the family integrity, and influences its transition processes[10] in a context of exchanges between the elements of the social network, which in this case are the members of the extended family, which correspond to the elements of the family of origin and other relatives not necessarily integrated in the family system.

The assessment of the caregiver role, enables an in-depth knowledge for nurses about the way families interact in order to respond to its members needs, in particular when there is one or more dependent family member. These show higher risk of being neglected, when the family member playing this role is either the husband or a sun, compared to the case of the wife or a daughter[11]. In this perspective the assessment of all the dimensions in this area of attention is essential, in order to accurately identify general and particular needs, considering the specificities of the family. Usually the members of the family have no training in the health area, nor receive any compensation for the role they play, spending most of their time caring for the family member[12], somehow confirming the prevalence of needs of the caregiver role. Similarly, the complexity of all domains integrating this area, it is essential to develop more effective strategies, in order to increase health gains for families with a dependent family member.

Globally, the analysis on the family process is the one showing lower outcomes in relation to nursing interventions, suggesting training needs in this particular area[13]. The complexity of this area of attention is characterized by the interrelation between five subdefinitions: family communication; family coping; interaction of family roles; dynamic relationship and family beliefs[4] revealing the international pattern the defines family as a co-evolutionary system.

The changes occurred in families with regard to the areas of attention where needs are identified that require implementation of interventions, translate health gains that may be attributable to nursing care and thus be sensitive to these professionals. These results corroborate other studies[14] referring to the application of assessment models and family intervention, notably the Calgary Family Assessment Model, demonstrating that the implementation of this frame of reference, both in hospitals and primary health care, enables the focus of nursing care is centered on the structure, development and functioning of the family.

Conclusion

The implementation of the MDAIF produced a positive impact on the production of health gains for families, empowering the development of assessment skills and family intervention. The highest health gains outcomes were for the development dimension, with rates above 50% in all the areas of attention: marital satisfaction; family planning; adaptation to pregnancy and parental role. Followed by the structural dimension in which all the áreas, except for household pet, showed percentages above 40%. In the functional dimension, rates ranged between 33% and 5.56%, corresponding to the caregiver role and family process, respectively.

On the other hand, the use of indicators, as tools for the promotion of healthcare quality in general and in this particular case of nursing care, allowed to confirm that the use of the MDAIF in a practical context, favours the care provided to families within the Primary Health Care. Health gains show that the MDAIF had a positive impact in the way families are cared for nurses, suggesting that nurses may have developed the ability to mobilize, combine and transfer knowledge to clinical situations.

The generalization of this study results in other geographical contexts will allow outcomes that favour:

- The monitoring of the implementation process of the MDAIF and the development of family health nursing, by identifying critical points that lead to the introduction of enhanced strategies for the bellow related tasks.
- Highlight the most prevalent family diagnosis enabling the establishment of strategies conducive to implementing evidenced-based strategic actions of empowerment of families and communities.
- Define a system of continuous improvement of the quality of nursing care supported by the MDAIF, based on the setting of milestones based on the outcomes.
- Manage resources allowing the adjusted allocation of nurses to the family nursing care needs.

The training in the context of fa-

mily health nursing, integrating content related to the MDAIF, as well as clinical supervision in the contexts will enable the development of skills and consequently lead to better health gains for individuals, families and communities.

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