

A Study on Visual Representation of Medical Family Tree Using Genograms

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Abstract

A genogram is a graphical representation of medical conditions including information on age and cause of death of family members that can be used especially to access disease risk. The main purpose of this paper is to present the outcome of a preliminary study done regarding accessing the current use of genogram in representing medical family tree data. This article seeks to enable the reader to understand the basics of what a genogram is and how it can be used to help medical practitioners visually understand family health and conditions based on information gathered for the family medical tree. Initial investigations suggest that genograms have huge potential, as they can help a lot people in various fields to visualize and understand patients' family medical history and look for recurring patterns of illness and behaviour.

Keywords: Genogram, Medical Family Tree, Visual Representation.

1. Introduction

A genogram is a tool that is used for tracking family history and relationships. It provides a detailed visual display of a family or groups that goes beyond a family tree in that it contains information about genealogy and different types of relationships [1]. It was first developed and popularized in clinical settings by family therapists Monica McGoldrick and Randy Gerson in their first book in 1985 [2].

It resembles a family tree, but is more sophisticated in its ability to provide particular kinds of information. For example, an individual genogram which traces the medical history of cancer in a family can be developed. This genogram includes basic information about each family member, such as the dates of birth, death, marriage, and divorce, and also the occurrences of cancer. It could easily be elaborated upon to show what kind of work the individual family members were involved in or pertinent habits, such as smoking, drinking, and so on.

When pertinent details are included, the genogram can help clarify and provide some understanding of how cancer has impacted this particular family.

Genograms can contain a lot of information on the families they represent. First, they contain basic data found in family trees such as name, gender, date of birth, and date of death of each individual. Additional data such as education, occupation, major life events, chronic illnesses, social behaviors, nature of family relationships, emotional relationships, and social relationships may also be included. Some genograms may also include information on disorders running in the family such as alcoholism, depression, diseases, alliances, and living situations.

Genograms can vary significantly, because there is no limitation as to what type of data can be included [4]. Fig. 1 shows some basic symbols for genogram.

Based on the visual representation using the symbols in Fig. 1, information about individuals such as gender, age, death, sexual orientation, income, ethnic origin and immigration pattern can be made available to assist health practitioners.

A genogram using medical symbols in as depicted in Fig. 1 may be useful in therapy to record patterns of illness or addiction in individuals and between family members, from which a family therapist can perform an assessment regarding interventions to assist the family.

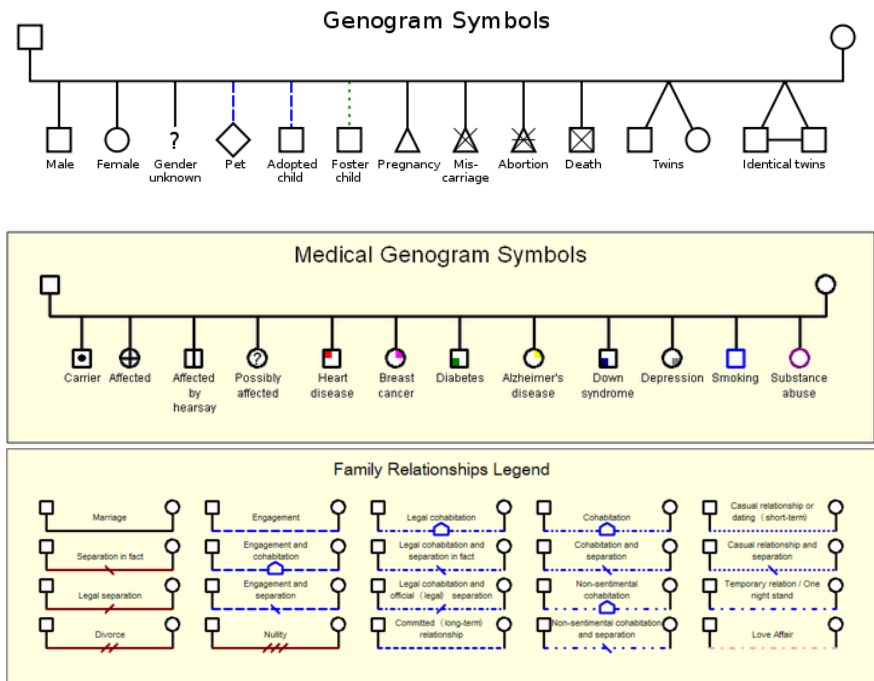


Fig. 1. Standard Symbols for Genograms [1].

What can a genogram tell us?

1. ***It can show patterns of household structure.*** Does the family have a history of strong nuclear families? Of divorce and remarriage? Of multi-generational households?
2. ***It can show life cycle patterns.*** How did family members move through the stages of leaving home, marrying, having children, and so on?
3. ***It can show patterns repeated across generations.*** Is there any indication of family strife between siblings? Alcoholism or other substance abuse? Strong expectations of success? Great emphasis on education or a particular line of work? Individual members cutting themselves off from the family?
4. ***It can show critical life events which have a profound effect on the family.*** Have there been prolonged illnesses? Suicide? Untimely deaths? Lottery winnings?
5. ***It can show relational patterns.*** Has there been a history of close mother-daughter relationships? Of fractured father-son relationships? Of sibling rivalry? Close relationships with non-family members?

2. Background & Related Work

Since the publication of Monica McGoldrick and Randy Gerson's first book in 1985, the genogram and its symbols have been expanded and modified

based on feedback and developments in the field, reflecting the growing and widespread use of genograms [1]. Two further editions of the book have been published to reflect these modifications. The new book point out that genograms are a work in progress, particularly as thinking about family context evolves. Technology is also evolving; for example, computerised programs are able to represent very complex genogram formats.

Development of various types of genogram such as cultural, socio-economic, ethical and career/work genograms is further evidence of the development and broader use of the tool over time [3].

Genograms have been used for the last four decades as a tool for mapping family patterns and the psychological factors that interrupt relationships. They allow a practitioner to identify and understand repetitive patterns of behaviour and to recognise hereditary tendencies; hence genograms are popular with healthcare professionals in areas such as social work, psychology, psychiatry, genealogy, genetic research, education and many more fields. Other information may be contained in a genogram depending on the desired information; for example, if the purpose of a genogram is to map the medical history of a family, the genogram might include information such as hereditary patterns, genetics and psychological patterns. Clinical uses of genograms include gaining insight into clients' psyche [5] and as a data gathering device on individuals and families [6].

Use of the genogram in family studies and family therapy is based on the assumption that some basic patterns between mother, father, and children, are replicas of past generations and may well be repeated in future generations. These repeated patterns may include relationship factors, personality characteristics, specific illnesses, etc. For example, one family may be typified by female-headed households over several generations. Another family may have many members with exceptional musical talent. A third family may have a history of diabetes. Such pieces of information are easily and simply illustrated in genograms.

3. Creating and Developing Genograms

Genograms are created through the gathering of information, which is essentially family members telling their story. The drawing of the genogram conforms to a set of rules in order that users all have the same understanding and, therefore, attain a similar interpretation of the genogram.

A clinician can gain multiple views by interviewing multiple family members, and they should scan for patterns that are repeated, helping families to avoid repeating unfortunate patterns or transmitting them into the future.

Genograms can help to visualize complex interactions between individuals and to study patterns of behaviors or diseases. Genograms are easily created with genealogy software, as advanced software allows the user to include tremendous amounts of data. Genealogy software also allows users to create de-

tailed reports containing analysis of the information stored in each person's individual properties. Commercial software, such as Genome Analytic, is available to produce genograms, as well as hundreds of different academic and scientific programs for specialized use.

3.1. Creating a Medical Genogram

To create a medical genogram, users must first determine which genetic diseases they wish to include. Options include: heart disease, cancer, diabetes, Alzheimer's disease, thyroid disease, certain birth defects, alcoholism, depression and schizophrenia. Users can always add more diseases later or change the symbols to reflect their current needs. Fig. 2 shows an example of a screenshot taken from Genepro [7].

In this diagram, the color and the corner of the fill associated with the selected disease need to be selected. In this case, heart disease is represented by a red square in the top left corner. User may use any combination of colors within the individual gender sign to make each disease unique. They can also change the color of the symbol or the text to represent a health condition.

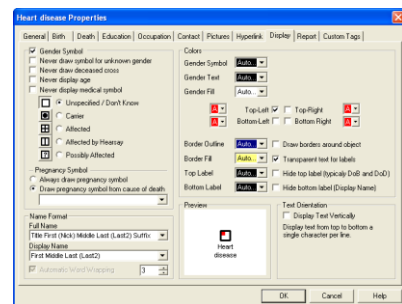


Fig. 2. Example of Genepro Screenshot [7].

3.2. Example of a Medical Genogram

Fig.3. shows an example of a medical genogram created for three generation. Based on this diagram, we can see that Paul, a smoker, recently died of a heart attack after years of battling with heart disease and diabetes. His wife Karen has been diagnosed with breast cancer. Nathalie is pregnant, and she is worried that she may have a breast tumour. The anxiety she feels has affected her mental health, and she is also dealing with depression. Meanwhile, Andrew is also a smoker, and his 8-year-old son has Down syndrome.

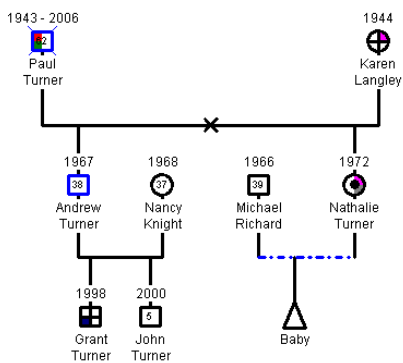


Fig. 3. Example of medical genogram

4. Discussion & Future Work

Once the users are familiar with the different colour codes that have been created, they will be able to read genograms in a matter of seconds, be able to understand the family risks for certain diseases, and come up with strategies for screening, diagnosis, and management.

One of the great values of a genogram is that it can bring to light certain patterns that have repeated themselves

through several generations. Our family's genogram may reveal an inclination to strike out on one's own, or perhaps reveal a pattern of family disruptions due to divorce, siblings cutting themselves off from family members, or health problems. Genograms can also reveal positive patterns. Many family histories show a pattern of strong, close nuclear families, siblings working well together, and forebears living long and satisfying retirements.

Based on the information described, genograms have a fundamental use in family therapy. They can function as a guide to provide a family with a better understanding of their history, dynamics and situations. Also, this visualization tool allows social transformation and empowerment as well as being sensible to the diverse type of families.

A genogram can also be used to understand one's development and the forces that converged to shape them. In the words of Monica McGoldrick, and Randy Gerson, "One might compare the family process to music, in which the meaning of individual notes depends on their rhythms in conjunction with each other and with the memories of past melodies and the anticipation of those yet to come" [3]. When an individual is able to evaluate an aspect of their own person in concert with the broader context of family patterns, a much deeper understanding can be achieved.

Acknowledgments. We thank Universiti Sains Malaysia (USM) for providing the funding (Research University (RUI) Grant - no: 1001/PKOMP/817071) through which this article was produced.

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