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### RESEARCH ARTICLE

#### GENETIC INSIGHT IN OCCUPATIONAL THERAPY: A PROFESSIONAL LEVEL SURVEY.

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##### Key words:-

Curriculum, Integration, Application, Questionnaire.

#### Abstract

**Background:** The purpose of this study is to identify what is currently being taught in occupational therapy course relevant to genetics and current opinions of occupational therapy educators about teaching genetics. Develop insight on need for occupational therapist to acquire knowledge about genetics and skills in use of genetics knowledge.

**Objective of study:** Objective of this study is to identify the perceived importance of genetic based topics in the bachelors 'of occupational therapy course. And find out the preferred method for teaching genetics.

**Method:** This study was conducted in Sir Sunderlal Hospital; Banaras Hindu University. 210 professionals all over the India who had bachelors' or masters from a recognized college in India were included in the study. A questionnaire was sent to all the professional with e mail and replied to this email was considered as consent to participate in the study. This questionnaire had questions related to importance of studying genetics and method of teaching genetics in occupational therapy syllabus. This Questionnaire was taken from a study by Kanny, E. M., Smith, R., & Dudgeon, B. J. (2005) in Genetics in occupational therapy education: A survey of professional Entry-level programs published in American Journal of Occupational Therapy, 59, 165–172. 3 times reminder was given in case of no reply within a week. If no reply was given participation was declined. An incomplete questionnaire was also accepted as a part of study.

**Results:** Few respondents rated genetics education as "very important" whereas many others answered that it was "not important." Regarding importance of studying genetics in occupational therapy syllabus 47% participants answered moderately important, 28% important, and 21% not important. Only 4% participant's rated genetic education as very important. When asked to identify methods used to teach genetic content, respondents identified case study 23 %, seminar 27%, classroom 15%, and workshop 35% including all the three tables. Most respondents did not view teaching genetics as a high priority in occupational therapy curricula

**Conclusion:** The results of this study indicate that there is lack of knowledge and interest in topics dealing with genetics. Occupational therapists are under confident in the field of genetics and need to taught

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more on genetic in particularly emphasizing on its integration and application of genetics in occupational therapy practices.

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## **Introduction:-**

Discoveries on interplay of genes, the environment or lifestyle, and the effects that they have on the presentation of genetic disorders bring forth the need for occupational therapists, to develop sound knowledge on genetics.<sup>1</sup> Genetics deals with hereditary, environment and chance, majority of genetic disorders are multifactorial, meaning that they results from some combination of genetics and environmental contribution.<sup>2</sup> Occupational therapist can use genetic information to assist clients to anticipate changes in their abilities after having clinical symptoms and adjust personal skills and environment to having independence in basic Activities of Daily Living.<sup>3</sup> Occupational therapists can assume role of counselor or clinician depending on the nature of the genetic condition as we are already intervening individuals with activity limitations related to genetic disorders.<sup>2</sup> The occupational therapists background in both social and physical abilities, with the focus on occupation, puts occupational therapists in the unique position of being able to discuss limitations of activity participation within treatment teams and with clients. Occupational therapists have less confidence in their ability to deal with genetic disorders and provide appropriate management.<sup>4</sup> Still today, most occupational therapists are not ready to implement genetics in a clinical context.<sup>5</sup> Occupational therapists must be well equipped with variety of skills which may be necessary to help clients and their families to understand about genetic disorders.<sup>6</sup> This article determine how genetic education is addressed in occupational therapy syllabus and gauge the level of interest for this topic among occupational therapy educators. Therefore it is important to educate occupational therapists regarding genetics. The reason to determine how and to what level genetics education is occurring to occupational therapist is to make sure that proper base of knowledge is given to future practitioners in our field. Genetic as a topic in occupational therapy course will influence the prevailing attitude about the role of the occupational therapist in addressing genetic issues with their clients, as well as the need for and importance of continuing education in genetics.<sup>5</sup> In order to provide the best service possible in this new era, occupational therapist must have a working knowledge of genetics, as the scope of their professions require.<sup>7</sup> The purpose of this study is to identify what is currently being taught in occupational therapy course relevant to genetics and current opinions of occupational therapy educators about teaching genetics.

## **Method:-**

### **Place of study:**

This study was conducted in occupational therapy unit of Sir Sunderlal Hospital, Banaras Hindu University.

### **Sampling size:**

210 occupational therapist all over the India, who had bachelors' or masters' of occupational therapy from a recognized institute.

### **Sampling methods:**

A questionnaire was send to all occupational therapist with e mail.

### **Inclusion criteria:**

1. Postgraduate students of occupational therapy in a recognized institute.
2. Occupational therapists working in government hospitals.
3. Occupational therapists practicing in their own clinic.
4. Occupational therapists working in private clinic owed by others.
5. Occupational therapists working in NGOs.
6. Occupational therapists working as academicians in government or private colleges.
7. Occupational therapists working in schools dealing with special children.

### **Exclusion criteria:**

Occupational therapist graduated from or having master degree from outside India.

### **Variables of the study:**

Importance of studying genetics and method of teaching genetics in occupational therapy syllabus.

**Instruments:**

A Questionnaire was taken from a study by Kanny, E. M., Smith, R., & Dudgeon, B. J. (2005). Genetics in occupational therapy education: A survey of professionalEntry-level programs. American Journal of Occupational Therapy, 59, 165–172.

**Procedure**

The questionnaire was e mail to all the included professionals and reply to e mail was considered as consent to participate in study. 3 times reminder was given in case of no reply within a week. If no reply was given after 3 times reminder, participation was declined. An incomplete questionnaire was also accepted as a part of study.

**Results:-**

1. The closed-ended questions were analyzed using descriptive statistics calculated on an Excel spreadsheet. Data from this study is reported as aggregate numbers and percentages and does not identify any specific respondents.
2. Out of 210 questionnaires mailed to the professionals.117 complete surveys were returned.49 surveys were incomplete and 44 survey were not replied.
3. When asked to identify methods used to teach genetic content, respondents identified case study 23 %, seminar 27%, classroom 15%, and workshop 35% as the preferred methods for teaching genetics.
4. Most respondents did not view teaching genetics as a high priority in occupational therapy curricula. Few respondents rated genetics education as “very important” whereas many
5. others answered that it was “not important.” Regarding importance of studying genetics in occupational therapy syllabus 47% participants answered moderately important, 28% important, and 21% not important. Only 4% participant’s rated genetic education as very important.
6. 5% of respondents were academicians in government or private college.12% were postgraduate students, 14% were having their own set up, 29%were working in NGOs, and 20% of respondents were from government hospitals as occupational therapist, 10% working in private setup, 10% working in school settings.

**Discussion:-**

Results of the survey help to address importance of teaching genetics and methods which can be used for teaching genetics. Response rate to the survey was only 63.9% which is below expected rate of response. The barrier to making the reply may be lack of interest and knowledge in genetics, or occupational therapist did not perceive genetics as an important topic relative to occupational therapy .Which requires future understanding and development of their knowledge base related to genetics. Alternatively, occupational therapy professionals may be waiting for more definitive changes to occur in practice before including this content in curricula.

In all of the three major genetics content areas, the preponderance of teaching was reported to be at the “introductory” or “knowledge and understanding” levels (see Tables 1, 2, and 3). If occupational therapy educators are going to prepare new practitioners for the challenges of genetics, it is imperative that teaching moves toward the integrative and application levels. In doing so, students will learn how to apply principles to occupational therapy practice and to analyze and solve problems specifics to genetics.<sup>8</sup> To address this level of learning, case-based examples would be a recommended teaching method such examples might nicely reflect a holistic understanding of genetic content and the ethical, legal, and social dilemmas occurring in practice or as part of client and family decision making .<sup>9</sup>Clinical reasoning about assessment and strategies to address lifestyle decisions and accommodations can be sorted out through realistic presentation of challenges faced by clients and families.

All surveys have the inherent weakness of representing opinions at a particular point in time, and at this time genetics is still an emerging topic of conversation for occupational therapists. Findings from this survey indicate a need for increased awareness of the implications and relevance of genetics to occupational therapy education and practice. Development of continuing education and graduation level education products and events will likely find an audience as genomic-based medicine advances and public media continue to make genetics a topic of interest and concern for everyone.<sup>10</sup>

In the first table, Basics of genetics the method of choose was case study indicating a preference for embedding genetics content within existing course rather than creating stand alone course in genetics. Introduction and knowledge and understanding were rated as important for occupational therapist to learn. Integration and application

was less popular indicating the occupational therapist were less confident to apply it in practice. 72% rate very important, 56% rated important, 42% rated moderately important, 32% rated not important as a whole for this part of questionnaire.

Second part of the questionnaire was the least respondent part, some answers were not respondent; most of the answered were opted as not important or moderately important and even left blank without any answer. Workshops were choice of method of study for this part of questionnaire. Introduction was perceived as important. But knowledge and understanding and integration and application was less covered part. 57% response was not important, 32% was moderately important, 28% was important, and 18% was very important for this table. Respondents acknowledged the need to do more with genetics relative to today's practice with particular emphasis on social implications.

Table three clinical applications of genetics were perceived as important by most of the respondent. But integration and application was perceived as least important. 32% not important, 76% moderately important, 52% important and 7% very important. Respondents stated the importance of learning basic genetics information, as well as the need for students to understand the clinical implications of genetic disorders. 64% respondent in this part considered workshop to be the preferred method for teaching clinical implication of genetics to occupational therapy professionals.

Analysis of answers in the questionnaire describes that genetics as a topic should be integrated in the course curriculum and should be taught to the students by relating to occupational performance. Given the growing impact that genetic knowledge has on people's lives and on healthcare and lifestyle decisions, occupational therapy professionals may not be sufficiently responsive to these changes.<sup>4</sup>

Overall genetics was perceived as important, but most of the respondents also perceived it not important also and workshop was most preferred method. Limitations of study were that sample size was small so more number of occupational therapy professionals can be included and more number of questions can be included in questionnaire. Recommendations for future study were that a questionnaire can be made having some different points covering different level of thought. Importance of some other topic in occupational therapy syllabus can be surveyed

### Conclusion:-

The results of this study indicate that there is lack of knowledge and interest in topics dealing with genetics. Occupational therapist are under confident in the field of genetics and need to taught more topics on genetic in bachelor level particularly emphasizing on its integration and application of genetics in occupational therapy practices.

### Acknowledgement:-

I really admire the efforts put by all the occupational therapist in filling the questioners.

### Illustrations

#### A Questionnaire to Identify What Is Taught In Occupational Therapy course Relevant To Genetics And Current Opinion About Teaching Genetics In Occupational Therapy Courses.

**Table 1:-**Basic Genetics Concepts Taught in Occupational Therapy Curricula

Genetic topic	Introduction	Knowledge & understanding	Integration & application	Method of study
Overview of human genetics	1-1 , 2-20, 3-44 , 4-101	1-1, 2-20, 3-46, 4-99	1-3, 2-17, 3-48, 4-97	1-46, 2-44, 3-30, 4-46
Genetics in common disorders	1-0, 2-10, 3-40, 4-116	1-1, 2-24, 3-25, 4-116	1-10, 2-30, 3-70, 4-56	1-69, 2-56, 3-17, 4-24
Genetic testing and screening	1-56, 2-80, 3-25, 4-5	1-46, 2-50, 3-45, 4-25	1-52, 2-65, 3-23, 4-26	1-30, 2-36, 3-30, 4-70

**Table 2:-**Ethical, Legal, and Social Implications Related to Genetics Taught in Occupational Therapy Curricula

Genetic topic	Introduction	Knowledge &	Integration &	Method of
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		understanding	application	study
Privacy and Confidentiality	1-32, 2-74, 3-28, 4-27, nt-5	1-70, 2-56, 3-19, 4-15, nt-6	1-119, 2-19, 3-7, 4-5, nt-16	1-59, 2-42, 3-9, 4-40, nt-16
Decision-making for genetic screening/testing	1-56, 2-52, 3-12, 4-9, nt-16	1-72, 2-68, 3-15, 4-6, nt-5	1-121, 2-21, 3-3, 4-1, nt-20	1-52, 2-52, 3-15, 4-45, nt-2
Informed consent to release genetic information	1-52, 2-51, 3-34, 4-17, nt-10	1-92, 2-32, 3-17, 4-13, nt-12	1-117, 2-16, 3-1, 4-0, nt-32	1-46, 2-36, 3-34, 4-34, nt-16
Discrimination due to genetic information	1-58, 2-58, 3-30, 4-10, nt-10	1-101, 2-31, 3-15, 4-5, nt-14	1-119, 2-12, 3-10, 4-4, nt-21	1-49, 2-0, 3-0, 4-35, nt-82
Racial/ethnic concerns	1-68, 2-70, 3-16, 4-6, nt-6	1-99, 2-36, 3-11, 4-12, nt-8	1-121, 2-13, 3-10, 4-2, nt-20	1-93, 2-32, 3-35, 4-6, nt-0
Resources, reimbursement, insurance	1-56, 2-11, 3-6, 4-12, nt-15	1-112, 2-26, 3-7, 4-6, nt-15	1-127, 2-8, 3-0, 4-0, nt-31	1-35, 2-32, 3-53, 4-42, nt-4

**Table 3:-Clinical Applications Related to Genetics Taught in Occupational Therapy Curricula**

Genetic topic	Introduction	Knowledge & understanding	Integration & application	Method of study
Discuss genetic conditions with clients	1-92, 2-21, 3-30, 4-20, nt-3	1-111, 2-18, 3-17, 4-13, nt-7	1-131, 2-20, 3-2, 4-1, nt-12	1-32, 2-15, 3-29, 4-46, nt-44
Discuss issues about genetic screening or testing with clients	1-101, 2-19, 3-19, 4-15, nt-12	1-114, 2-24, 3-20, 4-2, nt-6	1-126, 2-29, 3-1, 4-0, nt-10	1-4, 2-20, 3-31, 4-96, nt-15
Make referral for genetic counseling	1-86, 2-31, 3-21, 4-13, nt-15	1-119, 2-22, 3-13, 4-2, nt-10	1-148, 2-4, 3-1, 4-0, nt-13	1-79, 2-54, 3-15, 4-18, nt-0
Provide guidance to clients with genetic disorder about impact of condition	1-72, 2-39, 3-20, 4-13, nt-22	1-110, 2-31, 3-10, 4-3, nt-12	1-121, 2-14, 3-7, 4-7, nt-17	1-39, 2-17, 3-15, 4-95, nt-0

Number of respondents who have replied as 1,2,3,4 as

1. Not important
2. Moderately important
3. Important
4. Very important

**In method of study 1,2,3,4 as**

1. Case study
2. Seminar
3. Class room study
4. Workshop

1. NT is not answered number of not answered questions.
2. Number of respondents for each question is shown in the table.

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