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Persistent Misconceptions About Mutations Among Graduate Nursing Students

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INTRODUCTION

- Genetic information is influencing health care.¹
- Nurses need a foundation in the basics of genetics. ¹
- Genetic competencies for nurses are identified. ²-⁴
- Leaders called for research on genetics in nursing education.⁵
- The purpose of this study was to determine the ongoing misconceptions among a group of graduate nursing students regarding genetic mutations.

METHODS

- Prospective cohort design
  - Public university students
  - Nursing anesthesia program
  - Fall 2014 to Fall 2016
- Program entry and exit testing knowledge of genetic mutations
  - Anonymous survey
  - 3 Items of basic knowledge regarding Mutations from the Genomic Nursing Concept Inventory - 2011 Beta Version (GNCI)⁶
- Limited genetic content in curriculum
- T-test for differences in entry and exit scores
- Examined items with > 30% incorrect on exit surveys
- Most frequent responses = misconceptions

RESULTS

**Table 1. Persistent Misconceptions vs Correct Response**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Incorrect Pre</th>
<th>Incorrect Post</th>
<th>Misconception</th>
<th>Correct Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>68</td>
<td>54</td>
<td>A group of people with a named gene mutation, such as BRCA1, are likely to have identical mutations (23% chose this response)</td>
<td>A group of people with a named gene mutation such as BRCA1 are likely to have unique mutations</td>
</tr>
<tr>
<td>2</td>
<td>57</td>
<td>42</td>
<td>The most common way for a mutation to contribute to disease is by increasing the rate of DNA replication (39% chose this response)</td>
<td>The most common way for a mutation to contribute to disease is by directing the formation of altered proteins or unexpected amounts of proteins</td>
</tr>
<tr>
<td>3</td>
<td>36</td>
<td>31</td>
<td>In an individual with a named gene mutation, such as BRCA1, in which cells would the mutation be found? her breast cells (15% chose this response)</td>
<td>In an individual with a named gene mutation, such as BRCA1, in which cells would the mutation be found? all her cells that contain a nucleus</td>
</tr>
</tbody>
</table>

IMPLICATIONS

When addressing graduate nursing students, educators should not assume incoming students have a strong foundation regarding genetic mutations. Educators should examine the current curriculum for opportunities to begin with the basics and develop teaching strategies to address the common persistent misconceptions.

CONCLUSIONS

- Identified ongoing misconceptions among graduate nursing students regarding basic knowledge of genetic mutations for every GNCI mutations item.
- Given the lack of a statistically significant change in entry and exit scores and the high percentage of incorrect exit scores, the curriculum needs revision.

REFERENCES