Presenting Quantitative Information About Placebo Rates to Patients

Research suggests that many people do not know the purpose of placebo groups in experiments and do not adequately understand the concept of clinical trial informed consent. However, people may be able to use placebo group information to draw inferences about drug efficacy, and some researchers suggest providing patients with clinical trial information in direct-to-consumer advertising. How, then, can we best explain placebo groups in this context? We tested 4 terms to convey the concept of placebo that could be included in direct-to-consumer ads.

Methods | Invitations were sent to 4600 members of an opt-in Internet panel; 506 responded, and 100 qualified for, consent to, and completed the study. To qualify, panelists had to report chronic pain in the past 6 months. Low response rates are a common limitation of Internet-based studies. Participants were randomly assigned to read 1 of 4 descriptions of a fictitious drug: “30 out of 100 people on the drug Quilarix reduced their pain symptoms. 20 out of 100 people [on placebo, on sugar pill, without Quilarix, or with no treatment] reduced their pain symptoms.” We asked 2 open-ended questions: “What do these statements mean to you?” (overall understanding) and “What does [placebo, sugar pill, without Quilarix, or with no treatment] mean here?” (term understanding). Two independent raters coded responses (intrarater reliability, ≥0.8). Note that overall understanding was a judgment with no correct answer. This study was granted an exemption by the Food and Drug Administration’s Research Involving Human Subjects Committee.

Results | Most participants were white (76 [76%]) and not Hispanic (84 [84%]), and 51 were women (51%). Participants had a mean (range) age of 54 (21–87) years. Thirty (30%) had a high school degree or less, 37 (37%) had some college, and 33 (33%) had a college degree or higher.

When asked about their overall understanding, 19 participants (19%) said that the statements meant that the drug works well, 40 (40%) said that the drug does not work well, and 8 (8%) said that the drug does not work at all (Table 1). Only 15 (15%) quoted the numbers given and 13 (13%) compared the numbers to arrive at the difference between the drug and placebo groups. Participants who saw the term “without Quilarix,” compared with those who saw the term “placebo,” were more likely to compare the numbers (P = .01).

When asked about their term understanding, 8 participants (33%) who saw “placebo” defined it as a sugar pill and 7 (29%) defined it as a fake pill or drug (Table 2). Similarly, 9 participants (35%) who saw “sugar pill” defined it as a placebo. In contrast, 11 participants (44%) who saw “without Quilarix” and 19 (76%) who saw “with no treatment” defined it as no drug.

Discussion | Although most participants used the statements to make a judgment about the drug’s efficacy, there was no consensus judgment: the largest group of participants believed that it meant that the drug did not work well, but 19% believed that it meant that the drug did work well. Although these qualitative judgments were not affected by the term used or demographic characteristics (data not shown), they may be based on expectations or prior experience.

Importantly, formation of quantitative judgments was affected by the term used. Participants who saw “placebo” and “sugar pill,” compared with those who saw “without Quilarix” and “without treatment,” were more likely to understand that participants in the control group received a fake pill rather than no drug at all. However, participants who saw the term “without Quilarix” were more likely to make the direct comparison between the drug and control groups, therefore better understanding the gist of the statements.
These findings suggest that patients may not need to understand the scientific definition of placebo in order to use the information to make judgments about drug efficacy. Terms such as “without the drug” deserve additional study.

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Author Contributions: Dr Sullivan had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Analysis and interpretation of data: Sullivan, O’Donoghue.

Drafting of the manuscript: Sullivan.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Sullivan, O’Donoghue.

Administrative, technical, or material support: O’Donoghue, Aikin.

Study supervision: Aikin.

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References


"Due" for a Scan: Examining the Utility of Monitoring Densitometry

Opinions differ on the utility of monitoring dual-energy x-ray absorptiometry (DXA) to assess responses to treatment for low bone mineral density (BMD). Some argue that routine monitoring DXA may be unnecessary because approximately 98% of postmenopausal women treated with alendronate sodium experience an increase in BMD, and variation in subsequent BMD measurements by DXA may obscure the treatment effects.4

This study aimed to understand the utility of monitoring DXA scans by assessing (1) clinician rationale for ordering monitoring DXA and (2) the treatment changes that follow among average-risk women who are receiving treatment for low BMD.

Table 1. Responses to “What Do These Statements Mean to You?” (Overall Understanding) That Were Coded Into 5 Categories, by the Term Provided

<table>
<thead>
<tr>
<th>Term Provided</th>
<th>Drug Works</th>
<th>Drug Does Not Work Well</th>
<th>Drug Does Not Work</th>
<th>Quoted No</th>
<th>Compared No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%)</td>
<td>P Value</td>
<td>No. (%)</td>
<td>P Value</td>
<td>No. (%)</td>
</tr>
<tr>
<td>Placebo (n = 26)</td>
<td>5 (21)</td>
<td>.77</td>
<td>8 (33)</td>
<td>.08</td>
<td>2 (8)</td>
</tr>
<tr>
<td>Sugar pill (n = 24)</td>
<td>6 (23)</td>
<td></td>
<td>6 (23)</td>
<td></td>
<td>2 (8)</td>
</tr>
<tr>
<td>Without Quilarix (n = 25)</td>
<td>3 (12)</td>
<td></td>
<td>14 (56)</td>
<td></td>
<td>3 (12)</td>
</tr>
<tr>
<td>With no treatment (n = 25)</td>
<td>5 (20)</td>
<td></td>
<td>12 (48)</td>
<td></td>
<td>1 (4)</td>
</tr>
</tbody>
</table>

* The categories “drug works,” “drug does not work well,” and “drug does not work” were mutually exclusive. All participants responded to this question.

Table 2. Responses to “What Does [Placebo, Sugar Pill, Without Quilarix, or With No Treatment] Mean Here?” (Term Understanding) That Were Coded Into 4 Categories, by the Term Provided

<table>
<thead>
<tr>
<th>Term Provided</th>
<th>Placebo</th>
<th>Sugar Pill</th>
<th>Fake Drug or Pill</th>
<th>No Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%)</td>
<td>P Value</td>
<td>No. (%)</td>
<td>P Value</td>
</tr>
<tr>
<td>Placebo (n = 26)</td>
<td>1 (4)</td>
<td>.01</td>
<td>8 (33)</td>
<td>.001</td>
</tr>
<tr>
<td>Sugar pill (n = 24)</td>
<td>9 (35)</td>
<td></td>
<td>4 (15)</td>
<td></td>
</tr>
<tr>
<td>Without Quilarix (n = 25)</td>
<td>2 (8)</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>With no treatment (n = 25)</td>
<td>3 (12)</td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

* Categories were not mutually exclusive. For instance, the response “fake, sugar pill” was categorized as “sugar pill” and “fake drug or pill.” Responses from 34 participants could not be coded into any of these categories (eg, “don’t know”).

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