



Behavioral Economics and Pharmacoeconomic Evaluation Studies

Hossein Naderi^{1*}, Mohsen Mohammadi¹

1. Department of Pharmacoeconomics and Pharmaceutical Administration, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran. *Corresponding Author: drhosseinnaderi@yahoo.com

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Highlights

- This paper explores the potential impact and application of behavioral economics findings on economic evaluations in the pharmaceutical sector.
- The review identifies several biases in preference elicitation methods (such as DCEs and WTP), including compliance, strategic, starting point, and range bias, which are directly linked to behavioral concepts like anchoring.
- Findings from behavioral economics demonstrate that choices are shaped by factors like loss aversion and hyperbolic discounting, and the concept of a "nudge" is shown to potentially influence the outcomes of questionnaire-based research; if proven, applying nudges could lead to more effective health policies while calling into question the validity of previous studies that did not account for these influences.

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ABSTRACT

Background: The traditional economic view of humans as purely rational, self-interested actors has been challenged by behavioral economics, which integrates psychological insights to explain cognitive biases and their influence on decision-making. This paradigm shift has significant implications for healthcare policy, where understanding societal preferences is crucial for designing effective and efficient interventions.

Methods: This paper explores the potential impact of behavioral economics on economic evaluations in the pharmaceutical sector. It reviews key methodologies for preference elicitation, including discrete choice experiments (DCEs) and the willingness to pay (WTP) method, which are commonly used to value health benefits and patient preferences. The analysis focuses on identifying inherent biases within these methods and connecting them to well-established behavioral economic phenomena.

Results: The review identifies several biases in preference elicitation methods, such as compliance, strategic, starting point, and range bias, which are directly linked to behavioral concepts like anchoring. Furthermore, findings from behavioral economics demonstrate that choices are shaped by factors like loss aversion and hyperbolic discounting, leading to decisions that may contradict an individual's true preferences. The concept of a "nudge"—altering the choice context—is shown to potentially influence the outcomes of questionnaire-based research. If proven, this impact suggests that applying nudges could lead to more effective health policies, while simultaneously calling into question the validity of previous studies that did not account for these influences.

Keywords: Behavioral Economics, Preference Elicitation, Willingness to Pay (WTP), Discrete Choice Experiments (DCEs), Cognitive Biases, Health Policy



Letter to Editor

Resources are scarce while needs are unlimited. This is a fundamental principle of economics that guides resource allocation. Traditionally, economists viewed humans as rational beings driven solely by economic self-interest, making decisions based on logic and profit maximization. However, the emergence of behavioral economics, which combines psychology and economics, has challenged this view. Research by Nobel laureates like Daniel Kahneman and Richard Thaler has shown that humans are influenced by cognitive biases and are susceptible to manipulation. Consequently, policymakers can significantly impact people's decision-making by exploiting these biases.

With this introduction, this paper aims to delve deeper into the potential impact and application of behavioral economics findings on economic evaluations in the pharmaceutical sector. One of the core principles of policymaking across various domains is understanding the preferences of the target population. In the healthcare sector, designing effective and efficient policies and providing healthcare services requires aligning these policies with the needs of the community. This, in turn, necessitates healthcare policymakers being aware of individuals' preferences regarding health programs and outcomes. Numerous questionnaires are used to assess patients' quality of life and identify societal preferences. Some of these questionnaires include (1):

- EQ-5D (EuroQol-5Dimension)
- SF-6D (Short Form-36)
- HUI (Health Utilities Index)
- HAQ (Health Assessment Questionnaire)

In addition to the aforementioned methods, theoretical studies suggest that discrete choice experiments (DCEs) are one of the most effective methods for identifying societal preferences and valuing the benefits of policies. Another objective of this method is to quantify patients' preferences and determine their willingness to pay for specific drug attributes. Proponents of preference elicitation argue that understanding and incorporating patient preferences can enhance treatment adherence. A review study has shown a promising trend toward the use of more flexible and appropriate

DCE designs and econometric methods, coupled with an increased use of qualitative methods to explore DCE processes and outcomes. However, qualitative methods are less frequently used to inform attribute choice, which could make DCEs susceptible to omitted variable bias if the decision-making framework is not well understood prior to the research project (2).

In addition, various methods have been proposed in health economics to estimate the monetary value of health benefits, with one of the most significant being the willingness to pay (WTP) method. This method can value both the indirect and intangible aspects of a disease or condition within a hypothetical market. Based on welfare economics theory, it incorporates patients' preferences and intangible benefits such as quality of life differences. It can be conducted through face-to-face interviews, mail, telephone, or internet surveys. Despite advancements in methodologies for collecting reliable and valid WTP values, this method still has limitations. One such limitation is the inability to accurately capture the true market value of a program or intervention. Additionally, WTP is inherently susceptible to various biases, including compliance bias, strategic bias, starting point bias, and range bias. We will briefly discuss each of these biases below:

1- Compliance bias

This bias occurs when respondents tend to agree with the interviewer, often leading to overestimated WTP values.

2- Strategic Bias

This bias occurs when respondents intentionally overstate or understate their WTP to influence the outcome. For example, a respondent might understate their WTP to pay less out of pocket.

3- Starting Point Bias

This bias, observable in pricing games, highlights the nature of such methods. It's akin to an auction where various prices are suggested to determine the maximum WTP of an individual. Crucially, before the second response is requested, prices are adjusted based on the first. Consequently, the initial suggested price can significantly influence the WTP, introducing a bias. Behavioral economics sheds light on this bias by referring to a cognitive error known as

the anchoring effect. In this bias, the mind gets stuck on the initial information or a part of it during the decision-making process and does not bother to search further. Therefore, it seems that the mind anchors its decision-making point in a specific part of the information and makes an unintentional error in choice (3).

4- Range Bias

In payment card methods, WTP is evaluated by presenting a range of prices. Due to its nature, this method can be subject to price range bias. This means that the presented price range actually determines the perceived value of the intervention and can influence the individual's response, resulting in different WTP values for the intervention. For example, if the price range is from 0 to 75 dollars compared to 0 to 150 dollars, a comparison error occurs. In larger ranges, the value of numbers is underestimated, and respondents' WTP can vary depending on which range is presented (4). As mentioned, many behavioral economists believe that people's choices often contradict their preferences. One implication of these assumptions is that individuals, when reflecting on their past, would not choose the options they initially preferred. Economists like Thaler and Sunstein argue that people often fail to understand what is best for them, leading them to make suboptimal choices. This opens the door for paternalistic interventions to guide individuals towards choices that experts deem

to be in their best interest. Some behavioral economists believe the role of experts is to 'nudge' people's choices in a direction that the expert believes is right. Behavioral economics integrates psychological insights with economic principles, offering a number of robust psychological phenomena that help explain human behavior. Studies have shown that people's decisions regarding incentives may be shaped by subtler factors such as (loss aversion), overweighting of small probabilities, (hyperbolic discounting), increasing returns, and reference points, many of which have been identified through research in behavioral economics (5). For example, changing environmental factors (the context in which choices are made) can alter people's choices. In behavioral economics, these influential factors are referred to as 'nudges'(6). Therefore, we can be confident that behavioral theories influence how health preferences are elicited. Given behavioral economics' ability to alter the results of questionnaire-based research, it is likely that nudges have a significant impact on studies heavily reliant on questionnaires. If this impact is proven, we can use these methods to develop health strategies and policies, leading to more effective health programs. Additionally, if this impact is confirmed, the results of all previous studies evaluating these methods would be subject to criticism, as different results could be obtained if nudges were applied.

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