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ChatGPT-assisted introduction of exercise advice to patients with phenylketonuria: restrictions and advantages

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A. Study design/planning
B. Data collection/entry
C. Data analysis/statistics
D. Data interpretation
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Dear Editor,

Phenylketonuria (PKU), the inborn error in amino-acid metabolism, is one of the consanguineous marriage-related prevalent disorders. It is a genetic defect in the capability of the body to metabolize the essential amino acid, phenylalanine (Phe). Accumulated levels of Phe cause neurological complications, intellectual disabilities, anxiety/depression, and/or executive functioning defects/deficits [1].

Exercise is very important for a healthy lifestyle, especially in PKU patients who are advised to be included in a regular exercise program (to limit PKU-related complications) in line with diet recommendations (reduced consumption of natural protein and Phe-containing food in addition to restitution with protein supplements) [2].

Lifestyle modification programs are recommended for patients suffering from chronic diseases [3], including PKU. These lifestyle recommendations may be suitable for all PKU patients. Artificial intelligence (AI) tools, especially ChatGPT (a prevalent language-model Internet program that processes a person's natural language-like inquiries and generates AI-based responses that resemble human responses in the field of healthcare) [4,5], are technology-based programs assisting in introducing exercise advice to PKU patients.

The main advantage of ChatGPT is its assistance in introducing exercise advice according to every patient's medical/lifestyle history, basic (demographic) characteristics, and psychological condition. Also, besides its ability to identify or anticipate complications such as cardiovascular, muscular,

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or neurological complications and how to reduce them, another advantage of this AI-based program is its ability to track patients' progress over time in addition to adjusting exercise recommendations as possible.

However, other restrictions or concerns may limit its use by patients, such as the ethical implications of recommending exercise advice to patients without the supervision of healthcare professionals, the probability of falsely introduced exercise advice, the confidentiality of PKU patients' data, and possibilities for hacks of patients' data which must be solved by computer engineers to improve privacy and security concerns of ChatGPT. Future research is important to detect the ChatGPT program's strengths and limitations in assisting or introducing a piece of exercise advice to PKU patients.

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