Memory Based Dietary Assessment Methods:
Reliability and Influencing Factors

Magdalena Tschernko, Msc.
+4369911053220, magdalena.tschernko@univie.ac.at

Description of the initiative

Dietary assessment methods are of fundamental importance in understanding the relationship between nutrition and health. Accurate documentation of food intake plays a crucial role in individual and public health strategies. Despite the widespread use of the 24-hour dietary recall method, its limitations hinder its efficacy, including memory bias and systematic misreporting. While technological advances have attempted to improve dietary assessments, the persistence of food omissions and inaccuracies suggests that significant gaps remain. The present project addresses these issues by examining how memory and other physiological and environmental factors affect recall accuracy.

The primary objective is to evaluate the effectiveness of the 24-hour recall as a dietary assessment method compared to objective measurement methods, such as camera-monitored dietary intake day.

Planned activities & deliverables

The project will be carried out over three years, with the following key phases: a pilot study (year one), recruitment and pre-screening of participants, camera-monitored dietary intake day, 24-hour recall sessions, and data analysis and comparison. The main deliverables will be a comprehensive dataset comparing 24-hour recall and camera-monitored data and a dataset identifying contributing factors.

The pilot study will be completed within the first 12 months to ensure that any necessary methodological refinements are implemented before the primary research commences. In addition, participant recruitment and pre-screening will be initiated. By 24 months, we will have completed the first data collection cycle. A preliminary dataset will then be available for initial analysis, allowing an assessment of data trends and possible methodological adjustments before proceeding to subsequent phases of the study.

Resources & enablers

This project requires funding for personnel (research assistants, data analysts and nutritionists), equipment (cameras and accessories for dietary intake monitoring), participant compensation and publication fees. No additional funding has been secured at this stage. The grant will primarily purchase necessary equipment, compensate research staff and cover participant recruitment. In addition, part of the funding will be used for data analysis software and publication fees.

The project's success will be guaranteed by expertise of my supportive team, who provide constructive feedback throughout the research process. In addition, the pilot study is an important step in identifying and addressing potential methodological challenges to ensure the effective conduct of the main research.

Results/outcomes & expected impact

If the study shows that the 24-hour recall method is significantly inaccurate, revealing a significant discrepancy between self-reported and objectively measured dietary intake, this will indicate that the current recall format is unsuitable for accurate dietary assessment and requires methodological refinement. Developing an improved 24-hour recall method will provide nutritionists and dietitians with more reliable dietary data, ultimately enhancing dietary interventions, disease prevention and patient management. Although previous studies have used camera-based dietary assessment, most have been pilot studies or conducted on a small scale. In addition, these studies have largely overlooked the role of psychological, physiological and environmental factors in influencing recall accuracy. This project introduces a novel approach to dietary assessment by systematically investigating these moderating factors. Additionally, the methodology developed in this study is highly adaptable. It can be implemented in different settings and countries, making it a valuable tool for international nutrition research and policy development.

[X] **Please tick to confirm the PEN letter of endorsement is attached. Incomplete submissions will not be considered.**