International Research Journal of Medical Sciences and Health Care (IRJMSHC)
eISSN: 3087-405X
Volume03 Issue09 | Page No: - 11-16

Received: 26 July 2026, Revised: 30 July 2026, Accepted: 21 August 2026, Published: 13 September 2026

DOI: https://doi.org/10.55640/irjmshc-v03i09-02

Behavioral Lifestyle Profiling and Assessment: Development and Preliminary Validation of a Methodological Tool for Graduate Women

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ABSTRACT: Behavioral lifestyle assessment is increasingly important for understanding the multidimensional factors associated with obesity, health behavior, physical activity, dietary practices, sleep, sedentary behavior, and health-service utilization. Graduate-level women represent a particularly relevant population because academic demands may interact with eating patterns, physical activity, sleep duration, screen exposure, and self-monitoring behaviors. This study develops and conceptually evaluates a structured Behavioral Lifestyle Profiling and Assessment Tool (BLPAT) designed specifically for graduate women. The methodological framework integrates behavioral domains identified across the provided literature, including nutrition, physical activity, sleep, sedentary and screen-related behavior, self-monitoring, health-service utilization, and contextual health disparities. The preliminary evaluation focuses on content alignment, domain coverage, conceptual coherence, and practical usability rather than claiming statistical validation from an unavailable participant dataset. The proposed instrument provides a multidimensional approach capable of converting heterogeneous lifestyle behaviors into a systematic behavioral profile. Its methodological contribution lies in integrating individual behavioral indicators with contextual and equity-oriented dimensions. The framework may support research screening, behavioral profiling, intervention planning, and longitudinal monitoring while recognizing limitations associated with self-reporting, contextual variability, and the need for subsequent psychometric testing.

KEYWORDS: Behavioral Lifestyle Assessment, Graduate Women, Lifestyle Profiling, Obesity, Physical Activity, Nutrition Behavior, Sleep Behavior, Self-Monitoring, Health Assessment, Behavioral Research.

1. Introduction

Lifestyle-related health outcomes are shaped by interconnected behavioral, environmental, social, and healthcare-related factors. Obesity represents one important manifestation of this complexity. Epidemiological evidence characterizes obesity as a major public-health concern influenced by multiple determinants rather than by a single behavioral factor (Hruby & Hu, 2015). Contemporary public-health perspectives similarly emphasize the need to understand obesity within broader systems involving nutrition, physical activity, social conditions, and health inequities (Agurs-Collins et al., 2024; Swinburn et al., 2019).

Graduate-level women constitute a meaningful population for behavioral lifestyle research because academic environments can involve competing demands on time, attention, sleep, physical activity, and food-related decision-making. A useful assessment instrument therefore needs to move beyond isolated measurements such as body weight or dietary intake and instead capture behavioral patterns across several interconnected domains.

Existing research illustrates the value of examining specific behavioral dimensions. Self-monitoring of weight, dietary intake, and physical activity has been investigated as an important component of technology-supported weight-management programs (Carpenter et al., 2022). Sleep duration has also been examined in relation to obesity treatment and behavioral health outcomes (Cizza et al., 2010). Research on eating behavior and fruit and vegetable consumption further demonstrates the relevance of dietary patterns to weight-related outcomes, particularly among women (Dreher & Ford, 2020). Meanwhile, screen exposure and sedentary behavior represent additional behavioral dimensions that may interact with broader lifestyle patterns (Tekeci

et al., 2024).

The central problem addressed in this methodological study is therefore the fragmentation of lifestyle assessment. Individual studies frequently examine particular behaviors independently, whereas a comprehensive behavioral profile requires their integration within a common assessment structure. The proposed Behavioral Lifestyle Profiling and Assessment Tool (BLPAT) addresses this gap by organizing relevant behavioral dimensions into a structured instrument for graduate-level women.

The principal objective is to develop a conceptually grounded assessment framework that can systematically characterize lifestyle behavior and provide an interpretable behavioral profile. A secondary objective is to conduct a preliminary methodological evaluation of the instrument's content coverage, conceptual organization, and practical applicability. The study does not claim empirical psychometric validity in the absence of a participant-level validation dataset.

2. Literature Review

2.1 Multidimensional Nature of Lifestyle and Obesity

The epidemiology of obesity demonstrates that excess weight should be interpreted through a broad behavioral and environmental lens rather than through a single explanatory variable (Hruby & Hu, 2015). Tiwari and Balasundaram similarly position obesity within a public-health context, reinforcing the importance of behavioral prevention and management. Singh et al. further emphasize epidemiologic and etiologic considerations, supporting the interpretation of obesity as a multifactorial condition.

The Global Syndemic framework extends this perspective by connecting obesity with undernutrition and environmental factors, demonstrating that individual lifestyle behaviors are embedded within wider systems (Swinburn et al., 2019). Agurs-Collins et al. (2024) likewise emphasize health disparities and equity as important considerations in nutrition-related health outcomes. Consequently, a lifestyle assessment tool should not reduce behavior to individual choices alone.

2.2 Nutrition and Dietary Behavior

Dietary behavior is a core component of lifestyle profiling. Dreher and Ford examined the relationship between increased fruit and vegetable consumption and weight loss among women, illustrating the importance of measuring specific dietary behaviors rather than treating nutrition as a generalized construct (Dreher & Ford, 2020). Cardarelli et al. demonstrate another dimension by highlighting barriers to healthy food access in rural Appalachia, indicating that dietary behavior may be constrained by contextual factors.

These findings support the inclusion of dietary frequency, food-choice patterns, fruit and vegetable consumption, meal regularity, and perceived barriers within a behavioral assessment framework.

2.3 Physical Activity and Sedentary Behavior

Physical activity represents another essential lifestyle dimension. The National Academies of Sciences, Engineering, and Medicine (2019) emphasize the importance of public-health surveillance of physical activity, supporting systematic measurement of activity patterns.

Physical activity should, however, be considered alongside sedentary and screen-related behaviors. Esposito et al. examined differences in eating habits, physical activity, and screen time across weekdays and weekends, demonstrating that behavioral patterns can vary according to temporal context. Tekeci et al. examined screen exposure and screen addiction, providing further support for incorporating screen-related behavior into broader lifestyle assessment.

2.4 Sleep and Self-Monitoring

Sleep is an important but frequently overlooked lifestyle dimension. Cizza et al. investigated extension of sleep duration within obesity treatment, illustrating the relevance of sleep behavior to weight-related interventions. Consequently, a comprehensive lifestyle tool should assess sleep duration and perceived sleep regularity.

Self-monitoring represents another important behavioral mechanism. Carpenter et al. examined consistency and disengagement from monitoring weight, dietary intake, and physical activity in a technology-based weight-loss program. This suggests that the capacity and willingness to monitor behavior may itself provide meaningful information about lifestyle-management practices.

2.5 Health Services and Contextual Factors

Lifestyle assessment also has implications for healthcare utilization. Bertakis and Azari reported associations involving obesity, alcohol abuse, smoking, and healthcare-service utilization, demonstrating that lifestyle characteristics may have consequences extending beyond individual behavioral outcomes (Bertakis & Azari, 2006). For this reason, the proposed tool incorporates selected health-service and health-risk indicators.

Bertakis and Azari's findings are particularly relevant to the methodological design because they demonstrate

why behavioral profiling should not be limited to nutrition and physical activity. A broader assessment can capture behavioral patterns potentially associated with healthcare needs and utilization (Bertakis & Azari, 2006).

Community-based participatory research principles also emphasize ethical and effective approaches to studying populations and communities (Amauchi et al., 2021). Thus, an assessment instrument intended for graduate women should be sensitive to contextual circumstances rather than interpreting all behaviors exclusively as individual deficiencies.

3. Methodology

3.1 Research Design

This study employs a methodological instrument-development design. The development process consists of four sequential stages: conceptual domain identification, item-domain mapping, scoring architecture, and preliminary methodological evaluation.

The first stage identifies lifestyle dimensions supported by the provided literature. The second translates these dimensions into measurable behavioral indicators. The third establishes an interpretable scoring structure. The fourth evaluates whether the proposed tool demonstrates adequate conceptual coverage and practical coherence.

The methodology is deliberately structured as a preliminary validation framework rather than a completed statistical validation study. Reliability coefficients, factor structures, sensitivity, specificity, and criterion validity would require empirical participant data and are therefore identified as future validation requirements rather than fabricated findings.

3.2 Proposed BLPAT Framework

The Behavioral Lifestyle Profiling and Assessment Tool is organized into seven principal domains:

1. Dietary Behavior
2. Physical Activity
3. Sedentary and Screen Behavior
4. Sleep Behavior
5. Self-Monitoring Practices
6. Health-Risk and Healthcare-Related Behavior
7. Contextual and Environmental Influences

The dietary domain can assess meal regularity, fruit and vegetable consumption, food-choice patterns, and perceived barriers to healthy eating. This structure reflects the literature linking dietary behavior with weight-related outcomes and access-related constraints (Dreher & Ford, 2020; Cardarelli et al., 2020).

The physical-activity domain can assess frequency, duration, and perceived adequacy of routine physical activity. The sedentary domain complements this by measuring prolonged sitting and screen exposure. Such separation is methodologically important because high physical activity does not necessarily eliminate extensive sedentary behavior.

The sleep domain assesses typical sleep duration, consistency, and perceived adequacy. Its inclusion is justified by evidence examining sleep extension in obesity treatment (Cizza et al., 2010).

The self-monitoring domain evaluates whether participants routinely monitor weight, dietary intake, physical activity, or related behavioral indicators. This domain is particularly relevant because engagement with self-monitoring may fluctuate substantially across individuals (Carpenter et al., 2022).

The health-risk domain can include indicators concerning smoking, alcohol-related behavior, healthcare engagement, and perceived health concerns. The inclusion of these indicators is supported by the relationship between obesity, substance-related behaviors, and healthcare utilization reported by Bertakis and Azari (2006).

Finally, the contextual domain captures perceived barriers, accessibility, academic demands, and environmental influences. This domain prevents the instrument from interpreting behavioral outcomes entirely through an individual-responsibility framework.

3.3 Scoring Architecture

Each behavioral item may be measured using a standardized ordinal response scale, for example ranging from low-risk to high-risk behavioral patterns. Items should be coded consistently so that higher composite scores indicate healthier behavioral profiles.

A domain score can be calculated as:

Domain Score = (Observed Item Score / Maximum Possible Item Score) × 100

An overall lifestyle profile can subsequently be generated using either equal domain weighting or empirically derived weights after statistical validation.

Equal weighting is preferable during preliminary development because it avoids imposing unsupported assumptions regarding the relative importance of dietary, physical-activity, sleep, or other domains. Future research may evaluate alternative weighting schemes through factor analysis, predictive modeling, or criterion-

based validation.

3.4 Preliminary Evaluation Strategy

The preliminary evaluation assesses four methodological characteristics: content relevance, domain completeness, conceptual coherence, and usability.

Content relevance concerns whether each item represents a behavior supported by the conceptual literature. Domain completeness concerns whether important behavioral dimensions have been omitted. Conceptual coherence evaluates whether items within each domain represent a sufficiently unified construct. Usability addresses whether graduate-level respondents can understand and answer the items without excessive burden.

A hypothetical example illustrates the tool's application. A participant reporting regular meals and high fruit and vegetable intake but low physical activity and prolonged daily screen exposure would not be classified simply as having a "healthy" or "unhealthy" lifestyle. Instead, the instrument would produce a multidimensional profile showing strengths in dietary behavior and weaknesses in activity and sedentary behavior. This profile is more actionable than a single aggregate label.

4. Results / Findings

The methodological development produced a multidimensional assessment framework designed to characterize behavioral lifestyle patterns among graduate-level women without reducing lifestyle health to a single outcome measure. The principal finding is the identification of seven complementary assessment domains: dietary behavior, physical activity, sedentary and screen behavior, sleep, self-monitoring, health-risk and healthcare-related behavior, and contextual influences. Collectively, these domains provide broader coverage than an assessment focused exclusively on obesity or body weight.

The preliminary content evaluation indicates strong conceptual alignment between the proposed domains and the provided literature. Dietary assessment is supported by research concerning fruit and vegetable intake and weight-related outcomes, while contextual dietary barriers justify the inclusion of environmental considerations (Dreher & Ford, 2020; Cardarelli et al., 2020). Similarly, the separation of physical activity from sedentary behavior strengthens the framework because existing evidence addresses both activity and screen-related patterns (National Academies of Sciences, Engineering, and Medicine, 2019; Esposito et al., 2022).

Sleep emerged as a distinct domain rather than being treated as a secondary lifestyle characteristic. This decision follows evidence that sleep-duration modification has been investigated within obesity treatment (Cizza et al., 2010). The resulting framework therefore recognizes that behavioral health profiles can contain interacting dimensions that may not move in the same direction.

Self-monitoring was also retained as an independent domain. This methodological decision is supported by evidence that engagement and disengagement from monitoring weight, dietary intake, and physical activity can vary among participants in technology-based interventions (Carpenter et al., 2022). The tool consequently assesses not only what individuals do but also the extent to which they monitor and regulate their own behaviors.

The inclusion of health-risk and healthcare-related behavior further expands the instrument's applicability. Bertakis and Azari's findings concerning obesity, smoking, alcohol abuse, and healthcare utilization support the relevance of considering these behaviors within a broader profile (Bertakis & Azari, 2006). A behavioral assessment that excludes such factors may overlook relationships between lifestyle characteristics and healthcare needs.

The preliminary evaluation therefore supports the instrument's content and conceptual adequacy, but not full statistical validation. No reliability coefficient, factor structure, or predictive accuracy is claimed because such conclusions require empirical data from the target population. The principal methodological outcome is consequently a structured and theoretically aligned assessment architecture suitable for subsequent empirical validation.

5. Discussion

The proposed BLPAT contributes to lifestyle assessment by shifting the analytical focus from isolated behaviors toward an integrated behavioral profile. This distinction is important because graduate women may simultaneously demonstrate healthy and unhealthy patterns across different domains. For example, an individual may maintain relatively favorable dietary practices while experiencing insufficient sleep, low physical activity, and extensive screen exposure. A single lifestyle score could conceal these contrasts, whereas domain-level profiling makes them visible.

The framework is consistent with the multidimensional interpretation of obesity and health behavior described in the literature. Hruby and Hu (2015) characterize obesity as an epidemiologically complex phenomenon, while the Global Syndemic perspective emphasizes broader interactions between obesity, undernutrition, and environmental conditions (Swinburn et al., 2019). Accordingly, the tool avoids

treating individual behavior as completely independent of its surrounding context.

The contextual domain is particularly important from an equity perspective. Agurs-Collins et al. (2024) emphasize nutrition-related health disparities, while Cardarelli et al. (2020) demonstrate how barriers to healthy food access can influence behavior. Therefore, poor behavioral scores should not automatically be interpreted as a lack of motivation or knowledge. Some behaviors may reflect accessibility, time constraints, environmental conditions, or other contextual limitations.

The tool also has potential implications for healthcare-oriented behavioral research. Bertakis and Azari demonstrated relationships between obesity, smoking, alcohol abuse, and healthcare utilization (Bertakis & Azari, 2006). Incorporating selected health-risk indicators therefore enables researchers to examine lifestyle behavior in relation to broader healthcare patterns rather than treating lifestyle assessment as an isolated wellness exercise.

A key trade-off concerns instrument comprehensiveness versus respondent burden. Adding more domains improves behavioral coverage but can reduce completion efficiency and potentially increase response fatigue. The proposed seven-domain structure therefore requires empirical item reduction following pilot testing. Similarly, self-reported behavioral measures can be affected by recall and social-desirability bias.

Another limitation concerns the preliminary nature of the evaluation. Content alignment does not establish construct validity, internal consistency, test-retest reliability, or predictive validity. Future studies should administer the instrument to adequately sized samples of graduate-level women and apply exploratory and confirmatory factor analysis, reliability testing, and criterion-related validation.

Overall, the framework provides a defensible methodological foundation for subsequent empirical investigation. Its greatest contribution is not the production of a single universal lifestyle score but the creation of a structured behavioral profile capable of identifying domain-specific strengths, vulnerabilities, and contextual influences.

6. Conclusion

This study developed and preliminarily evaluated a Behavioral Lifestyle Profiling and Assessment Tool for graduate-level women. The framework integrates dietary behavior, physical activity, sedentary and screen behavior, sleep, self-monitoring, health-risk and healthcare-related behavior, and contextual influences into a unified assessment architecture.

The literature-supported structure addresses an important limitation of fragmented lifestyle assessment by recognizing that health behavior is multidimensional. It also incorporates contextual and equity-oriented considerations, reducing the risk of interpreting behavioral outcomes solely as individual choices.

The proposed instrument should be regarded as a methodological foundation rather than a fully validated psychometric scale. Future research should conduct pilot testing, expert content validation, reliability assessment, factor analysis, and criterion-related validation with graduate-level women. Longitudinal implementation could further determine whether behavioral profiles predict changes in health behavior and intervention responsiveness.

Ultimately, the BLPAT framework offers a systematic approach for identifying behavioral patterns and generating individualized lifestyle profiles. Its application may support research, behavioral intervention design, health promotion, and future empirical studies examining lifestyle determinants among graduate-level women.

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