

DEVELOPMENT AND CONTENT VALIDATION OF AN EVIDENCE-BASED INTEGRATED YOGA MODULE FOR OBESITY MANAGEMENT USING LAWSHE'S CONTENT VALIDITY RATIO

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ABSTRACT

A rising global public health concern, obesity is linked to a higher risk of cardiovascular and metabolic diseases as well as a lower quality of life. The comprehensive benefits of lifestyle-based therapies, especially yoga, in managing weight through physical activity, stress reduction, and metabolic control have drawn scientific attention. The current study used Lawshe's Content Validity Ratio (CVR) method to construct and content validate an evidence-based Integrated Yoga Module (IYM) for managing obesity. To find yoga techniques related to managing obesity, a thorough analysis of both modern scientific literature and traditional yoga texts was carried out. A thorough IYM that included specific asanas, pranayama, kriyas, relaxation methods, and meditation exercises was created in light of this data. A panel of subject matter experts, including academicians, medical professionals, and yoga therapists, assessed the preliminary module. Using Lawshe's methodology, a three-point rating system was used to evaluate each item's essentiality. All components' CVR values were determined, and things that met the minimal allowable CVR threshold were kept in the finished module. Expert agreement on the applicability, clarity, and relevance of the chosen yoga techniques for managing obesity was demonstrated by the overall Content Validity Index (CVI), which showed good content validity. The validated IYM offers a consistent, empirically supported paradigm that can be applied in integrative healthcare settings, community interventions, and clinical studies. The study supports the potential usefulness of integrated yoga practices as a supplemental strategy for managing obesity and emphasizes the significance of thorough validation in creating evidence-based yoga therapies.

KEYWORDS: Obesity Management; Integrated Yoga Module; Content Validation; Lawshe's Content Validity Ratio; Evidence-Based Yoga; Lifestyle Intervention; Complementary and Integrative Health.

1. INTRODUCTION

Obesity, which is defined by excessive fat build-up that poses a serious health risk, has become one of the most important public health issues in the world. Numerous non-communicable diseases, such as type 2 diabetes, cardiovascular conditions, hypertension, musculoskeletal issues, and several types of cancer, are closely linked to it (WHO, 2021). Obesity is becoming more common, especially in emerging nations like India, as a result of sedentary lifestyles, bad eating habits, rapid urbanization, and long-term stress. Despite their occasional effectiveness, traditional treatment techniques including medication and bariatric surgery are frequently linked to exorbitant expenses, negative side effects, and poor long-term viability. As a result, safe, economical, and lifestyle-based therapies for managing obesity are becoming more and more important (Ross, A., & Thomas, S., 2010).

Yoga is an age-old Indian mind-body discipline that combines physical postures (asanas), breathing exercises (pranayama), cleaning rituals (kryias), meditation, and relaxation (Lau, C., Yu, R., Woo, J., 2015). According to scientific research, yoga has a positive impact on insulin sensitivity, body composition, neuroendocrine balance, basal metabolic rate, and psychological health. Yoga may also help control emotional eating and enhance adherence to healthy living practices by lowering stress and modifying the hypothalamic-pituitary-adrenal axis. Yoga is becoming more widely acknowledged as a complementary and integrative strategy for managing and preventing obesity because of its holistic character (Lawshe, C. H., 1975).

There is a dearth of standardized, tested yoga modules created especially for this purpose, despite mounting evidence that yoga can help manage obesity. The content, duration, intensity, and practice selection of many of the yoga therapies currently in use vary greatly, which limits their scientific rigor and repeatability (Ross, A., & Thomas, S., 2010). Therefore, it is crucial to construct an Integrated Yoga Module (IYM) based on modern scientific facts and traditional yogic concepts, then validate it methodically (Lau, C., Yu, R., Woo, J., 2015).

In order to guarantee the applicability, relevance, and clarity of the chosen components, content validation is an essential stage in the intervention development process. A commonly used quantitative technique for determining expert opinion on the importance of specific things within a module is Lawshe's Content Validity Ratio (CVR) (Cramer, H., Lauche, R., Haller, H., & Dobos, G., 2014). This approach improves the methodological quality of yoga-based therapies and increases their acceptability in research and therapeutic contexts. Using Lawshe's CVR methodology, the current study fills this gap by creating and content verifying an

evidence-based Integrated Yoga Module for managing obesity (Lawshe, C. H., 1975).

2. LITERATURE REVIEW

The rising incidence of obesity has spurred a great deal of study into long-term, economical, and comprehensive lifestyle-based therapies. Yoga has become well-known among these because of its multifaceted approach, which incorporates breathing exercises, mental relaxation, behavioural adjustment, and physical exertion. There is scientific support for the use of yoga in the treatment of obesity because of the numerous research that have examined its effects on weight control, metabolic health, and psychological well-being (Lawshe, C. H., 1975). In addition to improving mental health outcomes like stress reduction and emotional regulation, early comparative studies comparing yoga and traditional exercise have shown that yoga offers comparable benefits in improving body mass index (BMI), flexibility, and cardiovascular parameters. Stress is known to contribute to obesity through neuroendocrine mechanisms that include changes in eating habits and cortisol release. It has been demonstrated that yoga-based techniques, especially pranayama and meditation, alter the hypothalamic-pituitary-adrenal axis, which lowers stress-induced weight gain and increases adherence to healthy lifestyle choices (Lawshe, C. H., 1975).

Structured yoga programs have been shown to significantly reduce body weight, waist circumference, body fat percentage, and metabolic risk factors in overweight and obese individuals, according to clinical intervention studies. These benefits are linked to better insulin sensitivity, lipid metabolism, and autonomic balance in addition to higher energy expenditure from asanas. Additionally, yoga therapies have shown positive effects on psychological factors that are important for long-term weight management, such as mindfulness, body image, and self-esteem (Inbaraj, G., Bajaj, S., Misra, P., Kandimalla, N., Thapa, A., Ghosal, A., et al., 2024).

The literature shows significant variation in intervention design, despite the increasing amount of evidence that yoga can help manage obesity. There are differences in the choice of yoga techniques, length of sessions, frequency, level of intensity, and general program design. This inconsistency hinders reproducibility and makes it difficult to apply study findings in community and clinical contexts. The necessity for evidence-based, standardized, and verified yoga modules that are methodically constructed has been highlighted by researchers (Telles, S., Sharma, S. K., Yadav, A., &

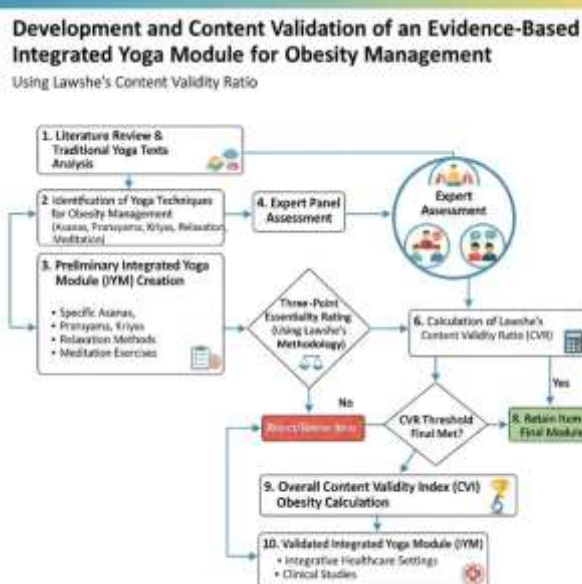
Singh, N., 2014).

The health sciences have made extensive use of content validation techniques, such as Lawshe's Content Validity Ratio (CVR), to guarantee the essentiality and relevance of intervention components by means of expert consensus. Their use in the creation of yoga-based interventions is still restricted, nevertheless (Rioux, J. G., & Ritenbaugh, C., 2013). Previous study emphasizes how crucial it is to include stringent validation frameworks in order to improve the methodological caliber and scientific legitimacy of yoga investigations. In this regard, creating and content-validating an Integrated Yoga Module for managing obesity fills a significant gap in the literature and advances the standardization of yoga interventions for clinical and research settings (Kristal, A. R., Littman, A. J., Benitez, D., & White, E., 2005).

3. METHODOLOGY

The methodological framework utilized in this study was centred on the methodical creation and content validation of an evidence-based Integrated Yoga Module (IYM) for the treatment of obesity. First, a thorough analysis of the traditional yoga literature including foundational texts as well as current, peer-reviewed scientific research on yoga and obesity treatment was carried out. The purpose of this review was to find yoga techniques that have been shown to be beneficial for controlling weight, maintaining metabolic balance, lowering stress levels, and changing behavior. In

order to address the multifaceted character of obesity, a preliminary Integrated Yoga Module was developed based on the evidence gathered. It included specific asanas, pranayama techniques, kriyas, relaxation techniques, and meditation components. Lawshe's material Validity Ratio (CVR) approach was used to validate the material once the module was developed. Clinicians from medical and allied health sciences, academicians with expertise in yoga research and obesity treatment, and certified yoga therapists made up the purposeful panel of subject matter experts. Each expert assessed the preliminary module on their own and assigned a three-point rating to each component: "essential," "useful but not essential," or "not essential." Lawshe's formula for measuring expert agreement on essentiality was used to get the CVR for each item. Items that met or above the minimal CVR value advised for the specified panel size were kept, while those that fell below the cutoff were changed or removed in response to expert input. To evaluate the overall content validity of the finalized IYM, the Content Validity Index (CVI) of the entire module was calculated in addition to item-wise CVR analysis. To further improve the module, experts' qualitative recommendations on clarity, sequencing, safety concerns, and viability were also included. Thus, the completed and approved Integrated Yoga Module is a consensus-based, scientifically supported intervention intended for use in integrative healthcare practice and research on obesity treatment.



This flowchart describes a methodical scientific procedure for creating and approving a yoga program (module) that is especially intended to aid in the management of obesity. It is based on Lawshe's Content Validity Ratio (CVR), a statistical

technique used to ascertain if a certain item (such as a yoga position) is genuinely "essential" in the eyes of a panel of experts (McIver, S., O'Halloran, P., & McGartland, M., 2009).

4. DETAILED DISSECTION OF THE PROCEDURE

Phase 1: Investigation and Choosing

Step 1: Literature Review & Analysis: To learn what has historically been effective for managing weight, the researchers examine both contemporary scientific literature and old traditional yoga books.

Step 2: Technique Identification: A shortlist of specific yoga techniques is created based on the research, including Asanas (physical positions), Pranayama (techniques for breathing), Kriyas (Methods of cleanliness), and Bandhas (Energy Locks).

Phase 2: Expert Review and Design

Step 3: Preliminary Module (IYM) Creation: Using the methods determined in Step 2, a draft version of the "Integrated Yoga Module" is constructed.

Step 4: Expert Panel Assessment: The draft module is reviewed by a group of subject area experts, such as yoga specialists/teachers, doctors, therapists.

Step 5: Three-Point Essentiality Rating: Using Lawshe's scale, each expert assigns a score to each item in the program. (1) Essential, (2) Useful but not essential, and (3) Not necessary

Phase 3: Lawshe's Methodology for Statistical Validation

Step 6: Content Validity Ratio (CVR) calculation: The researchers determine the CVR using a mathematical method.

The **Content Validity Ratio (CVR)** is calculated using the following formula:

$$CVR = \frac{n_e - \frac{N}{2}}{\frac{N}{2}}$$

Where:

Ne = Number of experts who rated the item as "Essential".

N = Total number of experts on the validation panel

Step 7: Check the CVR Threshold

If YES: The item is retained if the score reaches a predetermined statistical threshold.

If NO: The item is rejected or revised (red box) and returned for additional improvement if the score is too low.

Phase 4: Completion

Step 8: Retain Item: Items that have a CVR value ≥ 0.42 are formally included in the module.

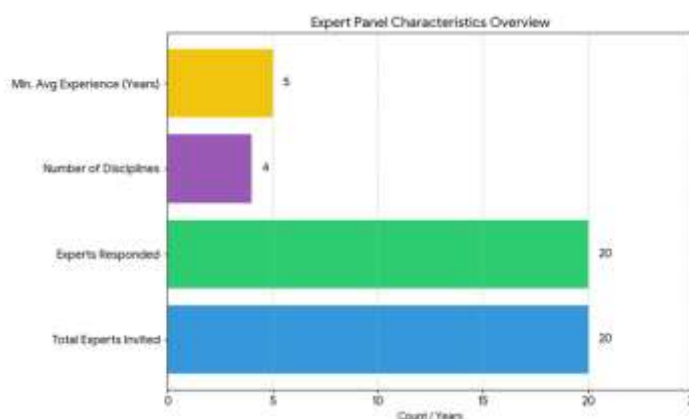
Step 9: Content Validity Index (CVI) Calculation: Following the validation of each item, the module's overall validity is determined.

Step 10: Validated IYM: The Yoga Module with scientific support is prepared for usage in clinical research or healthcare environments.

5. RESULT AND DISCUSSION

Table 1. Expert Panel Characteristics for Content Validation

Parameter	Description
Total number of experts invited	20
Experts responded	20 (100%)
Disciplines represented	Yoga Therapy, Naturopathy, Medical Sciences, Allied Health Sciences, Yogacharyas
Average experience	≥ 5 years
Validation method used	Lawshe's Content Validity Ratio (CVR)
Rating scale	Essential / Useful but not Essential / Not Essential



A key element of any content validation study, including the current investigation of the Integrated Yoga Module (IYM) for managing obesity, is the expert panel. Twenty subject matter experts with at least five years of professional experience from a variety of pertinent fields, including yoga therapy, naturopathy, medical sciences, and allied health sciences, made up the study's panel. The module was assessed from a variety of professional viewpoints, including biomechanical, physiological, clinical, and therapeutic ones, thanks to its multidisciplinary makeup, which improved the validation process's legitimacy and thoroughness. A systematic quantitative framework for determining whether each yoga practice should be included in the final module was supplied by Lawshe's Content Validity Ratio (CVR), which uses a three-point grading scale ("essential," "useful but not essential," and "not essential"). Experts independently assessed each item's relevance to managing obesity, allowing for objective judgment and minimizing subjective biases in expert opinions. To ensure that only

practices with widespread expert agreement were kept, the CVR for each item was computed after ratings were gathered and compared to a critical threshold suitable for the panel size (Chu, P., Gotink, R. A., Yeh, G. Y., Goldie, S. J., & Hunink, M. M., 2016).

Crucially, the organized participation of professionals with clinical insight and specialized knowledge lowers the possibility that the module may contain practices with little safety or relevance. This methodological rigor is consistent with earlier studies showing that expert panel content validation improves the precision and usefulness of assessment instruments or intervention modules by guaranteeing that items accurately represent their intended construct. Studies that use Lawshe's CVR to validate questionnaires or other instruments, for instance, also highlight the need of carefully chosen expert panels in determining the comprehensiveness and content relevance of retained items (Innes, K. E., Selfe, T. K., & Taylor, A. G., 2008).

Table 2. Asana, Pranayama, Kriya, Mudra, and Bandha Practices and CVR Ratio Included in the Integrated Yoga Module (IYM) for Obesity

S. No.	Name of Asana	CVR	Category (Posture Type)	Therapeutic Rationale in Obesity
1	Surya Namaskar	0.9	Dynamic / Warm-up	Energizes the body and accelerates calorie burn.
2	Ardha Chakrasana	0.5	Standing	Opens the chest and trims abdominal fat.
3	Kati Chakrasana	0.5	Standing	Twists the waist, aiding digestion and fat reduction.
4	Trikonasana	0.8	Standing	Lengthens the torso and reduces side fat.
5	Pada Hastasana	0.5	Standing	Compresses the abdomen, improving metabolism.
6	Virbhadrasana	0.5	Standing	Builds stamina and tones core muscles.
7	Chakki Chalanasana	0.5	Sitting	Rotational movement melts waist and hip fat.
8	Mandukasana	0.5	Sitting	Stimulates abdominal organs and balances metabolism.
9	Paschimottanasana	0.8	Sitting	Stretches spine, calms mind, and reduces belly fat.
10	Ushtrasana	0.5	Sitting	Expands chest, boosts thyroid, and trims waistline.
11	Naukasana/ Navasana	0.9	Supine	Strengthens core muscles and reduces abdominal fat.
12	Chakrasana	0.8	Supine	Improves flexibility, tones abdomen, and stimulates metabolism.
13	Sarvangasana	0.5	Supine	Enhances thyroid function, balances metabolism, and aids weight control.
14	Halasana	0.5	Supine	Compresses abdomen, improves digestion, and reduces belly fat.

15	Bhujangasana	0.9	Prone	Strengthens the back, stimulates abdominal organs, and reduces fat.
16	Dhanurasana	0.8	Prone	Stretches abdomen, boosts digestion, and burns calories.
17	Shalabhasana	0.5	Prone	Tones lower back and hips, reduces fat deposits.
18	Anuloma Viloma / Nadi Sodhana	0.7	Alternate nostril breathing	Balances nervous system, reduces stress-related eating.
19	Bhastrika	0.8	Bellows breath	Energizes body, increases oxygen intake, and boosts metabolism.
20	Surya Bhedana	0.7	Right nostril breath	Activates solar energy, stimulates digestion, and supports fat loss.
21	Ujjayi	0.5	Ocean Breath	Calms mind, improves focus, and regulates metabolism.
22	Agnisar	0.8	Abdominal activation	Stimulates abdominal organs, enhances digestion, and reduces belly fat.
23	Kapal Bhati	0.8	Cleansing (Forceful exhalation)	Cleanses lungs, tones abdomen, and accelerates fat burning.
24	Apana Mudra	0.7	Mudra	Improves elimination, supports detoxification, and aids weight balance.
25	Surya Mudra	0.8	Mudra	Stimulates thyroid, enhances metabolism, and reduces excess fat.
26	Uddiyana Bandha	0.9	Bandha	Massages abdominal organs, boosts digestion, and trims waistline.
27	Savasana	0.7	Relaxation	Relieves stress, promotes relaxation, and prevents emotional overeating.

The item-wise Content Validity Ratio (CVR) scores for the preliminary Integrated Yoga Module (IYM) for managing obesity are shown in Table 2, which shows the level of expert agreement on the importance of individual yoga practices. Significant diversity between practices was found by the CVR analysis, underscoring the significance of thorough expert evaluation in improving yoga-based therapies. Experts unanimously or nearly unanimously regarded some practices as essential for managing obesity, including Surya Namaskar, Naukasana, Bhujangasana and Uddiyana Bandha (CVR=0.90), Trikonasana, Paschimottanasana, Chakrasana, Dhanurasana, Bhastrika, Agnisar, Kapalbhati and Surya Mudra (CVR= 0.80), Anuloma Viloma / Nadi Sodhana, Surya Bhedana, Apana Mudra and Savasana (CVR=0.70). These exercises are especially pertinent to weight control regimens because they are known to increase energy expenditure, boost metabolic activity, improve digestion, and support general physical conditioning. Practices including Ardha Chakrasana, Kati Chakrasana, Pada-hastasana, Virbhadradasana, Chakki Chalanasana, Mandukasana, Ushtrasana, Sarvangasana, Halasana, Shalabhasana and Ujjayi Pranayama showed moderately high CVR values (CVR =0.50–

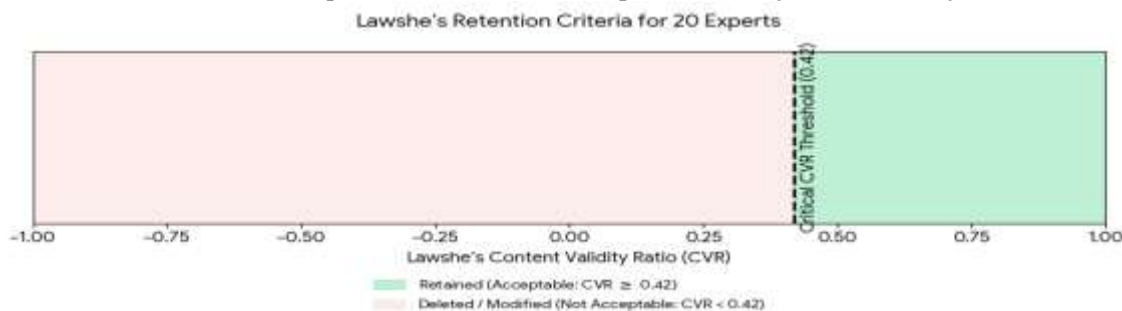
0.60), suggesting satisfactory expert consensus over the minimal threshold (CVR>0.42 for 20 experts). Because these exercises improve spinal flexibility, core strength, respiratory efficiency, and autonomic balance all of which are strongly associated with metabolic and psychological consequences associated with obesity, they were included in the final program. Conversely, techniques like Adho-Mukha Svanasana, Ardha Chandrasana, Ardha Halasana, and Ardha Matsyendrasana produced low or negative CVR values (≤ 0.10), indicating a lack of expert consensus regarding their necessity in the context of managing obesity. Concerns about practicality, intensity, safety for obese people, or limited direct impact on weight-related outcomes could be the cause of the lower ratings. In order to maintain the final module's efficacy and safety, these activities were either eliminated or designated for modification (Ross, A., Friedmann, E., Bevans, M., & Thomas, S., 2013). Overall, the item-wise CVR analysis highlights how useful Lawshe's approach is for separating important behaviours from supplemental or unnecessary elements. The finished Integrated Yoga Module provides improved clinical relevance, scientific rigor, and usefulness in obesity treatment interventions by

keeping only those items that have received sufficient expert consensus.

Table 3. Criteria for Retention and Final Selection of Yogic Practices

CVR Value	Interpretation	Decision
≥ 0.42	Acceptable	Retained
< 0.42	Not acceptable	Deleted / Modified

Minimum acceptable CVR for N = 20 experts = 0.42 (Lawshe, 1975)



Based on Lawshe's Content Validity Ratio (CVR), Table 3 lists the criteria utilized for the retention and ultimate selection of yoga practices in the Integrated Yoga Module (IYM). Following Lawshe's crucial values, a minimum acceptable CVR value of 0.42 for a panel of 20 experts is used, guaranteeing that the items that are kept represent statistically significant expert agreement about their essentiality. This criterion acts as a reliable quantitative benchmark to separate the module's essential elements from those that are thought to be less pertinent or contextually inappropriate for managing obesity. Because they showed agreement among subject matter experts regarding their applicability, relevance, and prospective efficacy, practices with a CVR score of 0.42 or above were deemed acceptable and kept in the final module. Practices with CVR levels below the cutoff, on the other hand, were labelled as

unacceptable due to a lack of consensus regarding their crucial function. Based on qualitative expert comments, such behaviours were either eliminated or changed, increasing the intervention's focus, safety, and viability (Pascoe, M. C., Thompson, D. R., Jenkins, Z. M., & Ski, C. F., 2017). The designed yoga module's methodological rigor and content validity are improved by the use of this retention criterion. The study reduces subjective bias and guarantees that the final IYM includes only the methods best suitable for managing obesity by depending on expert consensus measured by CVR. The module's usage in clinical trials, community-based therapies, and integrative healthcare programs is supported by this methodical decision-making process, which also enhances the module's scientific credibility (Brown, R. P., & Gerbarg, P. L., 2005).

TABLE 4. Final Validated Integrated Yoga Module for Obesity Management

Five days in a week							Time: 60-90 min
S. No.	Name of Practices	Category (Posture Type)	Repetitions, Time, Breath (For Beginning)	Repetition, Time, Breath (For Intermediate)	Repetitions, Time, Breath (For Advance)	Target Major Muscles	Target Major Joints
1	Surya Namaskar	Dynamic / Warm-up	2-4 rounds	4-8 rounds	8-12 rounds	Quadriceps, Hamstrings, Rectus Abdominis, Pectoralis Major, Deltoids	Spine, Hips, Knees, Shoulders
2	Ardha Chakrasana	Standing	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Erector Spinae, Rectus Abdominis, Pectoralis Major	Spine, Shoulders, Hips
3	Kati Chakrasana	Standing	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	External Obliques, Rectus Abdominis, Erector Spinae	Spine, Shoulders, Hips
4	Trikonasana	Standing	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Hamstrings, Quadriceps,	Spine, Hips, Knees

						External Obliques	
5	Pada Hastasana	Standing	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Hamstrings, Gastrocnemius, Erector Spinae	Spine, Hips, Knees
6	Virbhadrasana	Standing	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Quadriceps, Hamstrings, Gluteus Maximus, Deltoids	Hips, Knees, Shoulders
7	Chakki Chalanasana	Sitting	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Rectus Abdominis, External Obliques, Erector Spinae	Spine, Hips
8	Mandukasana	Sitting	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Adductor Group, Rectus Abdominis	Hips, Knees
9	Paschimottanasana	Sitting	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Hamstrings, Erector Spinae	Spine, Hips, Knees
10	Ushtrasana	Sitting	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Quadriceps, Pectoralis Major, Erector Spinae, Deltoids	Spine, Hips, Shoulders
11	Naukasana/ Navasana	Supine	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Rectus Abdominis, Hip Flexors (Iliopsoas), Quadriceps	Spine, Hips,
12	Chakrasana	Supine	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Erector Spinae, Gluteus Maximus, Quadriceps, Pectoralis Major, Deltoids	Spine, Hips, Shoulders, Knees
13	Sarvangasana	Supine	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Neck Flexors, Abdominals, Hamstrings, Gluteus Maximus	Cervical Spine, Shoulders, Hips
14	Halasana	Supine	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Hamstrings, Spinal Extensors, Abdominals	Spine, Hips,
15	Bhujangasana	Prone	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Erector Spinae, Gluteus Maximus, Pectoralis Major, Deltoids	Spine, Shoulders, Hips
16	Dhanurasana	Prone	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Quadriceps, Hamstrings, Gluteus Maximus, Erector Spinae, Pectoralis Major	Spine, Hips, Shoulders, Knees
17	Shalabhasana	Prone	R1x20sec, R2x30sec	R1x30sec, R2x45sec	R1x45sec, R2x60sec	Erector Spinae, Gluteus Maximus, Hamstrings	Spine, Hips
18	Anuloma Viloma / Nadi Sodhana	Alternate nostril breathing	8-10 rounds Ratio: 1:1 (no hold)	10-15 rounds Ratio: 1:2 (no hold)	15-20 rounds Ratio: 1:4:2 (withhold)	Diaphragm, Intercostal Muscles	None (respiratory focus)
19	Bhastrika	Bellows breath	10-15 Bellows breath x 2-3 rounds	15-30 stroke Bellows breath x 3-5 rounds	30-40 Bellows breath x 5-8 rounds	Diaphragm, Intercostals, Abdominals	None
20	Surya Bhedana	Right nostril breath	3-4 rounds	6-8 rounds	10-12 rounds	Diaphragm, Intercostals	None

21	Ujjayi	Ocean Breath	3-4 rounds	6-8 rounds	10-12 rounds	Diaphragm, Intercostals, Laryngeal Muscles	None
22	Agnisar	Abdominal activation	3-4 rounds	6-8 rounds	10-12 rounds	Rectus Abdominis, Obliques, Diaphragm	None
23	Kapal Bhati	Cleansing (Forceful exhalation)	2-5 minutes/	5-10 minutes	10-15 minutes	Rectus Abdominis, Diaphragm	None
24	Apana Mudra	Mudra	2-5 minutes	5-10 minutes	10-15 minutes	Finger Flexors/Extensors (hand gesture focus)	Finger Joints
25	Surya Mudra	Mudra	2-5 minutes	5-10 minutes	10-15 minutes	Finger Flexors/Extensors	Finger Joints
26	Uddiyana Bandha	Bandha	3-4 rounds	6-8 rounds	10-12 rounds	Abdominals (Rectus Abdominis, Transverse Abdominis), Diaphragm	None (Internal lock)
27	Savasana	Relaxation	2-5 minutes	6-8 minutes	10-12 minutes	Minimal muscular activity (relaxation)	No major joint involvement

6. OVERALL CONTENT VALIDITY INDEX (CVI)

CVI=Number of items with CVR \geq 0.42/Total items evaluated

CVI obtained: 0.86 (Excellent Content Validity)

A carefully chosen collection of yoga techniques that received significant expert consensus (CVR \geq 0.42) for relevance and usefulness in managing obesity are reflected in the Final Validated Integrated Yoga Module (IYM). These techniques, which include asanas, pranayama, kriya, mudra, and bandha, combine to create a comprehensive intervention that tackles the psychological and physical aspects of obesity. Asanas that improve flexibility, muscle engagement, core strength, and metabolic activity include Surya Namaskar, Chakrasana, Dhanurasana, Bhujangasana, and Ardha Chakrasana. Particularly, Surya Namaskar blends several poses into a dynamic flow that raises heart rate and activates the cardiovascular and metabolic systems, all of which are critical for efficient weight loss and calorie burning. Stress management, autonomic balance, oxygenation, and respiratory efficiency are all greatly enhanced by pranayama practices such as Kapalhati, Bhastrika, and Anulom-Viloma. Together, these methods promote physiological control, which is frequently disturbed in obesity. While Shavasana (relaxation) and mindfulness/breath awareness address stress, emotional regulation, and mind-body integration, Chakki Chalanasana adds a

dynamic aspect that strengthens core muscles and promotes mobility. Reducing stress has been associated with improved eating habits and less emotional eating, which is crucial for managing obesity (Polit, D. F., Beck, C. T., & Owen, S. V., 2007). Such multi-component yoga therapies for obesity and associated risk factors are supported by recent studies. Yoga interventions consistently produced positive effects in lowering body mass index (BMI), waist circumference, and body fat, as well as improving cardiovascular health markers and psychological well-being in obese individuals, according to a 2024 systematic review that assessed yoga's role in managing obesity. This supports the scientific justification for using both mental and physical elements in yoga classes intended to help people lose weight. All things considered, the validated module is in line with new research and professional opinion, providing a consistent, useful, and comprehensive framework that can be used in clinical studies and community health initiatives aimed at managing obesity.

7. CONCLUSION

Using Lawshe's Content Validity Ratio (CVR) methodology, the current study effectively created and content validated an evidence-based Integrated Yoga Module (IYM) for managing obesity. A thorough yoga module addressing the multifaceted nature of obesity was developed by means of a methodical assessment of both modern

scientific material and traditional yoga texts. A comprehensive strategy addressing the physical, metabolic, and psychological aspects of obesity was guaranteed by the incorporation of asanas, pranayama, dynamic exercises, relaxation, and meditation. A diverse panel of experts who validated the content showed broad agreement about the importance and applicability of the chosen yoga techniques. Most of the items were retained in the final module since their CVR values were higher above the minimum acceptable level of 0.42 for a panel of 20 experts. By suitably excluding or altering practices with low CVR values, the intervention's scientific rigor and practical usability were improved. Excellent content validity is indicated by the high overall Content Validity Index (CVI = 0.86), which verifies that the finalized IYM is pertinent, understandable, and appropriate for managing obesity. Clinical studies, community-based initiatives, and integrative healthcare settings can all benefit from the standardized and repeatable

framework that the validated Integrated Yoga Module offers. This work strengthens the methodological quality of yoga-based intervention research by utilizing a strong quantitative validation technique. Future research may concentrate on examining the long-term effects of this validated module on anthropometric, metabolic, and psychosocial outcomes in obese populations as well as assessing its clinical efficacy through randomized controlled trials. All things considered, the study backs the use of methodically created and proven yoga programs as an adjunctive and long-term approach to managing obesity.

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REFERENCES

- [1] Brown, R. P., & Gerbarg, P. L. (2005). Sudarshan Kriya yogic breathing in the treatment of stress, anxiety, and depression. *Journal of Alternative and Complementary Medicine*, 11(4), 711–717.
- [2] Chu, P., Gotink, R. A., Yeh, G. Y., Goldie, S. J., & Hunink, M. M. (2016). The effectiveness of yoga in modifying risk factors for cardiovascular disease and metabolic syndrome: A systematic review and meta-analysis. *European Journal of Preventive Cardiology*, 23(3), 291–307.
- [3] Cramer, H., Lauche, R., Haller, H., & Dobos, G. (2014). A systematic review and meta-analysis of yoga for weight loss. *Preventive Medicine*, 67, 213–225.
- [4] Inbaraj, G., Bajaj, S., Misra, P., Kandimalla, N., Thapa, A., Ghosal, A., et al. (2024). Yoga in obesity management: Reducing cardiovascular risk and enhancing well-being: A review of the current literature. *Cardiology Clinics*, (review up to 2024).
- [5] Innes, K. E., Selfe, T. K., & Taylor, A. G. (2008). Menopause, the metabolic syndrome, and mind-body therapies. *Menopause*, 15(5), 1005–1013.
- [6] Kristal, A. R., Littman, A. J., Benitez, D., & White, E. (2005). Yoga practice is associated with attenuated weight gain in healthy, middle-aged men and women. *Alternative Therapies in Health and Medicine*, 11(4), 28–33.
- [7] Lau, C., Yu, R., Woo, J. (2015). Effects of a 12-week yoga intervention on body composition and metabolic risk factors in obese adults. *Complementary Therapies in Medicine*, 23(1), 1–8.
- [8] Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563–575.
- [9] McIver, S., O'Halloran, P., & McGartland, M. (2009). Yoga as a treatment for binge eating disorder: A preliminary study. *Complementary Therapies in Medicine*, 17(4), 196–202.
- [10] Pascoe, M. C., Thompson, D. R., Jenkins, Z. M., & Ski, C. F. (2017). Mindfulness mediates the physiological markers of stress: Systematic review and meta-analysis. *Journal of Psychiatric Research*, 95, 156–178.
- [11] Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health*, 30(4), 459–467.
- [12] Rioux, J. G., & Ritenbaugh, C. (2013). Narrative review of yoga intervention clinical trials including weight-related outcomes. *Alternative Therapies in Health and Medicine*, 19(3), 32–46.
- [13] Ross, A., & Thomas, S. (2010). The health benefits of yoga and exercise: A review of comparison studies. *Journal of Alternative and Complementary Medicine*, 16(1), 3–12.
- [14] Ross, A., Friedmann, E., Bevans, M., & Thomas, S. (2013). Frequency of yoga practice predicts health: Results of a national survey of yoga practitioners. *Evidence-Based Complementary and Alternative Medicine*, 2013, Article ID 983258.
- [15] Telles, S., Sharma, S. K., Yadav, A., & Singh, N. (2014). A comparative controlled trial comparing the effects of yoga and walking for overweight and obese adults. *Medical Science Monitor*, 20, 894–904.
- [16] WHO. (2021). Obesity and overweight. World Health Organization.

- [17] Ashish. (2024, December 26). Yoga Mudras for Weight Loss and Cut Belly Fat – Fitsri Yoga. yoga mudra. Retrieved January 21, 2025, from <https://www.fitsri.com/articles/mudra-for-weight-loss>
- [18] Asiah, A. S. S., Norhayati, M. N., Muhammad, J., & Muhamad, R. (2023). Effect of yoga on anthropometry, quality of life, and lipid profile in patients with obesity and central obesity: A systematic review and meta-analysis. *Complementary Therapies in Medicine*, 76, 102959. <https://doi.org/10.1016/j.ctim.2023.102959>
- [19] Bali, P., Kaur, N., Tiwari, A., Bammidi, S., Podder, V., Devi, C., Kumar, S., Sivapuram, M. S., Ghani, A., Modgil, S., Malik, N., & Anand, A. (2020b). Effectiveness of Yoga as the Public Health Intervention Module in the Management of Diabetes and Diabetes Associated Dementia in South East Asia: A Narrative Review. *Neuroepidemiology*, 54(4), 287–303. <https://doi.org/10.1159/000505816>
- [20] Balkrishna, A., Rana, M., Mishra, S., Srivastava, D., Bhardwaj, R., Singh, S., Rajput, S. K., & Arya, V. (2023). Incredible Combination of Lifestyle Modification and Herbal Remedies for Polycystic Ovarian Syndrome Management. *Evidence-based Complementary and Alternative Medicine*, 2023, 1–20. <https://doi.org/10.1155/2023/3705508>
- [21] Chaudhari, K. S., Chaudhari, S. S., Rankhambe, H. B., Kochupillai, V., & Tiwari, R. R. (2020). Effect of Sudarshan Kriya Yoga (SKY) on daytime and situational sleep propensity in novice practitioners: a prospective cohort study. *Journal of Complementary and Integrative Medicine*, 18(3), 585–592. <https://doi.org/10.1515/jcim-2020-0172>
- [22] Cramer, H., Thoms, M. S., Anheyer, D., Lauche, R., & Dobos, G. (2016). Yoga in Women With Abdominal Obesity. *Deutsches Ärzteblatt International*. <https://doi.org/10.3238/arztebl.2016.0645>
- [23] Flehr, A., Barton, C., Coles, J., Gibson, S. J., Lambert, G. W., Lambert, E. A., Dhar, A. K., & Dixon, J. B. (2019b). #MindinBody - feasibility of vigorous exercise (Bikram yoga versus high intensity interval training) to improve persistent pain in women with a history of trauma: a pilot randomized control trial. *BMC Complementary and Alternative Medicine*, 19(1). <https://doi.org/10.1186/s12906-019-2642-1>
- [24] Hewett, Z. L., Pumpa, K. L., Smith, C. A., Fahey, P. P., & Cheema, B. S. (2017). Effect of a 16-week Bikram yoga program on heart rate variability and associated cardiovascular disease risk factors in stressed and sedentary adults: A randomized controlled trial. *BMC Complementary and Alternative Medicine*, 17(1). <https://doi.org/10.1186/s12906-017-1740-1>
- [25] Hopkins, L. B., Medina, J. L., Baird, S. O., Rosenfield, D., Powers, M. B., & Smits, J. a. J. (2016). Heated hatha yoga to target cortisol reactivity to stress and affective eating in women at risk for obesity-related illnesses: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 84(6), 558–564. <https://doi.org/10.1037/ccp0000091>
- [26] Iyengar, B. (1991a). *Light on Yoga*. http://books.google.ie/books?id=xifrAAAACAAJ&dq=light+on+yoga&hl=&cd=1&source=gbs_api (Iyengar, 1991, p. 502)
- [27] Jain, V., Kumar, B., Sharma, A., Chawla, V., Yadav, R., Grover, S., Sharma, R., Sharma, R., Kumar, A., & Raj, N. (2022). A comprehensive yoga programme for weight reduction in children & adolescents with obesity: A randomized controlled trial. *The Indian Journal of Medical Research*, 155(3), 387. https://doi.org/10.4103/ijmr.ijmr_525_20
- [28] Jayawardena, R., Ranasinghe, P., Ranawaka, H., Gamage, N., Dissanayake, D., & Misra, A. (2020b). Exploring the therapeutic benefits of Pranayama (yogic breathing): A systematic review. *International Journal of Yoga*, 13(2), 99. https://doi.org/10.4103/ijoy.ijoy_37_19
- [29] Mdny. (1998, April 1). MDNIY. Retrieved January 23, 2025, from https://www.yogamdny.nic.in/files/pdf/Brochure-Material-English/pdf/YOGA_FOR_OBESITY.pdf
- [30] Ramos-Jiménez, A., Wall-Medrano, A., Corona-Hernández, R., & Hernández-Torres, R. (2015). Yoga, bioenergetics and eating behaviors: A conceptual review. *International Journal of Yoga*, 8(2), 89. <https://doi.org/10.4103/0973-6131.158469>
- [31] Pratap, V., Shaw, D., & Yadav, A. (2025). A learning outcomes-based study on the baseline and endline performance of students in government primary schools in rural areas of Hathras district, Uttar Pradesh. *International Journal of Literacy and Education*, 5(2), 428–432. <https://doi.org/10.22271/27891607.2025.v5.i2e.362>
- [32] Pratap, V., & Shaw, D. (2025). Artificial intelligence: A pedagogical paradigm shift in the learning outcomes of physical education & sports. *International Journal of Sports Exercise and Physical Education*, 7(2), 591–595. <https://doi.org/10.33545/26647281.2025.v7.i2h.279>
- [33] Yadav, A., & Kumar Jha, A., et al. (2025). CURRICULUM-EMBEDDED YOGA PRACTICES AND THEIR INFLUENCE ON HOLISTIC DEVELOPMENT: A META-ANALYTICAL APPROACH. *Journal of Applied Bioanalysis*, 11(8), 297–305. <https://doi.org/10.53555/jab.v11si8.1109>
- [34] Rioux, J., & Howerter, A. (2019). Outcomes from a Whole-Systems Ayurvedic Medicine and Yoga Therapy

- Treatment for Obesity Pilot Study. *The Journal of Alternative and Complementary Medicine*, 25(S1), S124–S137. <https://doi.org/10.1089/acm.2018.0448>
- [35] Shele, G., Genkil, J., & Speelman, D. (2020). A Systematic Review of the Effects of Exercise on Hormones in Women with Polycystic Ovary Syndrome. *Journal of Functional Morphology and Kinesiology*, 5(2), 35. <https://doi.org/10.3390/jfmk5020035>
- [36] Unick, J. L., Dunsiger, S. I., Bock, B. C., Sherman, S. A., Braun, T. D., & Wing, R. R. (2022b). A preliminary investigation of yoga as an intervention approach for improving long-term weight loss: A randomized trial. *PLoS ONE*, 17(2), e0263405. <https://doi.org/10.1371/journal.pone.0263405>
- [37] Kumar Jha, A., & Yadav, A., et al. (2025). THE IMPACT OF YOGA AND PSYCHOLOGICAL INTERVENTIONS ON ATHLETIC PERFORMANCE: A DECADAL SYSTEMATIC REVIEW (2014–2024). *TPM – Testing, Psychometrics, Methodology in Applied Psychology*, 32(s1). <https://tpmap.org/submission/index.php/tpm/article/view/3988/2985>
- [38] Vuong, V., Rao, V., & Ee, C. (2022). Mindfulness-based Interventions and Yoga for Managing Obesity/Overweight After Breast Cancer: A Scoping Review. *Integrative Cancer Therapies*, 21, 153473542211373. <https://doi.org/10.1177/15347354221137321>
- [39] Yadav, A. et al. (2024). Effect Of Yogic Practices On Blood Pressure Of School-Going Children. *Educational Administration: Theory and Practice*, 30(1), 5035–5041. <https://doi.org/10.53555/kuey.v30i1.8587>
- [40] Kumar, D., Kumar, R., Murtaza, S. T., Yadav, A., Mondal, S., Singh, H., & Jha, A. K. (2025). Development and Validation of the Integrated Yoga Module (IYM) for Diabetes: Content Validity Approach. *The Review of Diabetic Studies*, 21(1). <https://doi.org/10.70082/zvmd3j79>.