

Development and Validation of an Educational Framework to Prevent the Aesthetic Misuse of Cyproheptadine and Dexamethasone among Adolescents Enrolled in Medical Technical Institutes in Kinshasa, Democratic Republic of the Congo: A Three-Round Mixed-Methods Delphi Study

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Abstract

Background: The intentional use of medicines to modify physical appearance may expose adolescents to avoidable health risks. In this study, aesthetic medication misuse refers to the intentional use of a medicine primarily to modify body weight, body shape, or another aspect of physical appearance rather than to treat a diagnosed medical condition according to an appropriate therapeutic indication. This concept is distinguished from self-medication, non-prescription medicine use, and off-label use, which are broader or conceptually different medication-use practices. Cyproheptadine and dexamethasone were selected as priority medicines for curricular attention through the expert-consensus process. Their inclusion in the framework should not be interpreted as evidence of population-level prevalence, as the present study did not estimate the prevalence of their use among adolescents in Kinshasa. The objective of this study was to develop and validate a context-specific educational framework aimed at strengthening the competencies of A2 nursing students in preventing the misuse of aesthetic medications among adolescents in Kinshasa. **Methods:** A three-round mixed-methods Delphi study was conducted between January and April 2026. An initial purposive panel of 15 multidisciplinary experts was recruited; 12 experts completed all three rounds, correspond-

ing to an 80% retention rate. Round 1 used an open-ended semi-structured questionnaire and inductive thematic content analysis to identify the essential components of the educational framework. Rounds 2 and 3 used structured five-point Likert scales. Agreement was defined as the proportion of experts assigning a score of 4 or 5. Consensus was defined a priori as $\geq 75\%$ agreement. **Results:** Round 1 identified six major dimensions: the overall purpose of the framework, terminal competency, learning content, teaching strategies, assessment methods, and curricular organization. Round 2 supported pharmacological, psychosocial, behavioral, professional, pedagogical, and theoretical components. In Round 3, all 12 participating experts completed the final validation. The five final validation items generated 58 agreement ratings out of 60 possible ratings, corresponding to an overall agreement of 96.7%. All five items exceeded the predefined 75% consensus threshold. **Conclusion:** The Delphi process validated the Health, Medicines and Body Image educational framework, organized as a four-year spiral curricular progression for A2 nursing education. The framework integrates pharmacological, psychosocial, behavioral, and professional competencies and emphasizes active teaching and authentic competency-based assessment. The findings represent expert agreement concerning curricular content and structure and should not be interpreted as evidence of the prevalence of aesthetic medication misuse or as evidence that the framework has already changed adolescent medication-use behavior. Further implementation and effectiveness studies are required.

Keywords

Delphi, Aesthetic Medication Misuse, Cyproheptadine, Dexamethasone, Nursing Education, Competency-Based Education, Adolescents, Kinshasa, Educational Framework

1. Introduction

The misuse of medicines for non-therapeutic purposes, particularly to modify physical appearance, has emerged as a public health concern, especially among adolescents and young adults. The inappropriate use of substances such as cyproheptadine, dexamethasone, and anabolic steroids for body enhancement may be influenced by social norms, cultural preferences for specific body shapes, peer influence, and the widespread promotion of body image ideals through social media. Such practices may expose users to potentially serious health consequences, including endocrine, metabolic, cardiovascular, and psychological disorders [1] [2].

According to Ajzen's Theory of Planned Behavior, individual behavior is largely determined by behavioral intentions, which are influenced by attitudes, subjective norms, and perceived behavioral control [3]. In the context of aesthetic medication misuse, these constructs help explain how beliefs regarding weight gain, social expectations, and perceived ability to resist social pressure may influence decisions concerning medicine use. Consequently, preventive interventions should extend beyond the simple dissemination of information and address cognitive,

social, and behavioral determinants.

In the Democratic Republic of the Congo, particularly in Kinshasa, the use of medicines to modify body image occurs within a sociocultural environment characterized by particular body-shape preferences, informal circulation of pharmaceutical products, and limited awareness of the health risks associated with medication misuse. Health education research indicates that interventions targeting young people should be context-specific, participatory, and focused on strengthening psychosocial skills [4] [5].

In this context, the education of future nurses represents a strategic opportunity for prevention. Nurses play an important role in health education, health communication, and support for vulnerable populations. A Competency-Based Approach (CBA), which emphasizes the integrated mobilization of knowledge, practical skills, and professional attitudes in complex situations, is therefore particularly relevant to these educational needs [6] [7].

The development of an educational framework also requires coherent instructional organization capable of aligning learning objectives, content, teaching strategies, learning activities, and assessment methods. De Ketele's Pedagogical Hexagon provides a systemic basis for organizing these components [8]. Chevallard's theory of didactic transposition further provides a conceptual basis for transforming scientific knowledge into educational content that is accessible and relevant to learners [9].

The Delphi technique is an established method for developing and validating complex interventions requiring multidisciplinary expertise. Through successive rounds of consultation, it allows experts to review proposals and progressively establish structured agreement [10] [11].

The present study therefore aimed to develop and validate, through a three-round Delphi process, the Health, Medicines and Body Image educational framework for A2 nursing education in Medical Technical Institutes in Kinshasa. The framework is intended to strengthen the scientific, psychosocial, behavioral, and educational competencies required by future nurses to contribute to the prevention of aesthetic medication misuse among adolescents.

2. Methodology

2.1. Study Setting

The study was conducted in the Democratic Republic of the Congo between January and April 2026. Expert consultations were conducted according to participants' availability using remote approaches, including e-mail and electronic questionnaires, as well as face-to-face meetings. The framework was designed for potential integration into A2 nursing education to strengthen students' competencies in preventing aesthetic medication misuse among adolescents.

2.2. Study Design

This study adopted a mixed-methods Delphi design, combining qualitative explo-

ration during Round 1 with quantitative evaluation and consensus measurement during Rounds 2 and 3. The Delphi technique was selected because of its suitability for structuring multidisciplinary expert opinions, promoting iterative reflection, and progressively establishing agreement regarding the essential components of an educational framework adapted to the local context. The development process was also informed by a didactic engineering approach. The initial conceptual development was guided principally by Ajzen's Theory of Planned Behavior and De Ketele's Pedagogical Hexagon. Additional theoretical frameworks emerging from the Delphi process were subsequently evaluated and incorporated when they met the predefined consensus criterion.

2.3. Didactic Engineering Process

The educational framework was developed through three sequential stages:

- 1) Identification of educational needs based on available evidence concerning psychosocial determinants associated with aesthetic medication misuse;
- 2) Development of educational content according to the competencies required by future nurses for prevention, health education, and adolescent counseling;
- 3) Validation of the framework through successive Delphi rounds involving multidisciplinary experts.

The resulting framework was entitled Health, Medicines and Body Image.

2.4. Definition of Aesthetic Medication Misuse

For the purposes of the framework, aesthetic medication misuse was defined as the intentional use of a medicine primarily to modify body weight, body shape, or another aspect of physical appearance rather than to treat a diagnosed medical condition according to an appropriate therapeutic indication. This definition distinguishes the target behavior from self-medication, non-prescription medicine use, and off-label use. The framework does not classify every form of self-medication, non-prescription use, or off-label use as misuse. Rather, it focuses on inappropriate medication use in which appearance modification is the principal objective and the use is inconsistent with an appropriate therapeutic indication.

2.5. Selection of Cyproheptadine and Dexamethasone

Cyproheptadine and dexamethasone were included as priority curricular examples. Their selection was intended to ensure that future nurses understand:

- Their legitimate therapeutic roles;
- Basic pharmacological characteristics;
- Potential adverse effects;
- The distinction between therapeutic use and aesthetic misuse;
- Appropriate preventive counseling;
- Communication strategies for adolescents exposed to appearance-related medication pressures.

The study did not measure medication-use prevalence among adolescents.

Consequently, the inclusion of these medicines does not constitute an epidemiological finding.

2.6. Selection of the Expert Panel

The initial Delphi panel consisted of 15 experts selected through purposive sampling. The experts were recruited from Nursing Sciences, Didactics and Educational Sciences, Pharmacy, Medicine, Psychology, and Public Health.

The inclusion criteria were:

- Holding a Master's degree, PhD, or academic rank of Professor;
- Having at least five years of experience in higher education, research, or professional practice;
- Demonstrating recognized expertise in pedagogy, pharmacology, adolescent health, or prevention of risk behaviors;
- Agreeing to participate in the Delphi process.

Twelve of the 15 experts completed all three rounds, corresponding to an 80% retention rate. The characteristics of the initial expert panel are presented in **Table 1**.

Table 1. Characteristics of the Delphi expert panel.

Characteristic	Category	n (%)
Discipline	Nursing Sciences	3 (20.0)
	Didactics/Educational Sciences	3 (20.0)
	Pharmacy	2 (13.3)
	Medicine	3 (20.0)
	Psychology	2 (13.3)
	Public Health	2 (13.3)
Professional position	Professor/Academic staff	7 (46.7)
	Researcher	4 (26.7)
	Clinical/Professional practitioner	4 (26.7)
Years of professional experience	5 - 9 years	4 (26.7)
	10 - 19 years	6 (40.0)
	≥20 years	5 (33.3)
Institutional affiliation	University/Higher education	9 (60.0)
	Health facility	4 (26.7)
	Public health institution	1 (6.7)
	Other	1 (6.7)
Total	Initial expert panel	15 (100.0)

2.7. Delphi Procedure

Round 1: Exploration and Generation of Proposals

The first round was exploratory. A semi-structured questionnaire was distributed to collect expert recommendations regarding the essential components of the educational framework. The questionnaire explored educational objectives, knowledge and instructional content, expected professional competencies, teaching methods, learning activities, assessment strategies, and conditions required for integration into the A2 nursing curriculum. Responses were analyzed using inductive thematic content analysis to identify recurring themes and establish the priority dimensions of the framework.

Round 2: Quantitative Evaluation and Prioritization

Based on the findings of Round 1, a structured questionnaire was developed. Each proposed component was rated on a five-point Likert scale:

- 1 = Not relevant at all;
- 2 = Slightly relevant;
- 3 = Moderately relevant;
- 4 = Relevant;
- 5 = Highly relevant.

Experts assessed the relevance, coherence, and feasibility of each educational component. Agreement was calculated as the proportion of experts assigning ratings of 4 or 5.

Round 3: Final Validation and Consensus Stabilization

In the third round, experts received a summary of the second-round results and were invited to reconsider items that had not yet reached the predefined level of agreement. Consensus was defined a priori as $\geq 75\%$ agreement. Items reaching or exceeding this threshold were retained as final components of the educational framework. The final validation addressed the overall structure, curricular progression, integration of scientific and psychosocial competencies, contextual adaptation, and preventive orientation of the framework.

2.8. Data Analysis

Qualitative data from Round 1 were analyzed using inductive thematic content analysis to identify the main categories and dimensions of the educational framework. Quantitative data from Rounds 2 and 3 were analyzed by calculating the percentage of agreement for each proposed component. Agreement was defined as ratings of 4 or 5 on the five-point Likert scale. Consensus was considered achieved when at least 75% of participating experts expressed agreement. The findings were presented in summary tables showing the proposed components, the level of expert agreement, and the elements retained in the final framework. For the final validation, the overall agreement was calculated across the five final validation items. With 12 experts participating in Round 3, the five item-level agreement counts were 12, 11, 12, 11, and 12, giving 58 agreement ratings out of 60 possible ratings. Thus, overall agreement was $58/60 \times 100 = 96.7\%$.

2.9. Ethical Considerations

This study was approved by the Institutional Ethics Committee of the Higher In-

stitute of Medical Techniques of Kinshasa (ISTM-KIN) under reference number 0163/CBE/ISTM/KIN/RDC/PMBBL/2026 (issued January 12, 2026). In full alignment with the ethical principles of the Declaration of Helsinki, participation was strictly voluntary and contingent upon informed consent. To guarantee participant confidentiality, expert responses were fully anonymized throughout the Delphi consensus process, and results are reported exclusively in aggregate form to prevent the re-identification of individual respondents.

3. Results

3.1. Expert Participation

The initial panel included 15 experts from Nursing Sciences, Didactics and Educational Sciences, Pharmacy, Medicine, Psychology, and Public Health. The detailed characteristics of the initial panel are presented in **Table 1**. Twelve experts completed all three Delphi rounds, corresponding to an 80% retention rate. No nursing students participated in the Delphi expert panel. Nursing students represent the intended educational population for future implementation of the framework.

3.2. First Delphi Round: Exploration of Framework Components

The first round identified six major categories:

- 1) Overall purpose of the framework;
- 2) Expected terminal competency;
- 3) Learning content;
- 4) Teaching strategies;
- 5) Assessment methods;
- 6) Curricular organization.

3.2.1. Overall Purpose

Experts emphasized that the framework should move beyond awareness of pharmacological risks and promote sustainable changes in perceptions and behaviors related to body image and medication use. The main recommendations were:

- Promoting rational medication use;
- Challenging misconceptions linking weight gain with beauty and health;
- Strengthening decision-making in situations involving social pressure;
- Preparing future nurses to become prevention agents.

The resulting overall purpose was: To prepare nursing students capable of mobilizing scientific knowledge, psychosocial competencies, and educational strategies to prevent aesthetic medication misuse and promote a healthy body image among adolescents.

3.2.2. Expected Terminal Competency

Experts proposed that nursing students should be able to:

- Analyze situations involving aesthetic medication misuse;
- Identify individual and social determinants;

- Communicate effectively with adolescents;
- Develop context-appropriate prevention strategies;
- Support peers and communities in prevention activities.

The terminal competency was formulated as: To be able to prevent aesthetic medication misuse by mobilizing scientific knowledge, psychosocial competencies, and educational strategies adapted to personal, social, and professional contexts.

3.2.3. Four-Year Spiral Curricular Progression

Experts proposed progressive development across the four years of A2 nursing education:

A2 Level	Proposed Educational Focus
First Year (A2-1)	Awareness, problem identification, and recognition of aesthetic medication misuse
Second Year (A2-2)	Scientific knowledge and understanding of health risks
Third Year (A2-3)	Critical analysis, peer education, and health communication
Fourth Year (A2-4)	Professional practice, leadership, and community intervention

3.2.4. Priority Learning Content

Four major domains were identified.

Biomedical and pharmacological dimension

- General characteristics of cyproheptadine and dexamethasone;
- Legitimate therapeutic indications;
- Simplified mechanisms of action;
- Adverse effects and potential complications;
- Distinction between therapeutic use and aesthetic medication misuse.

Psychosocial dimension

- Social representations of the body;
- Beauty standards;
- Peer influence;
- Social media;
- Cultural beliefs regarding body weight;
- Self-esteem and body acceptance.

Behavioral dimension

- Decision-making;
- Resistance to social pressure;
- Self-assertiveness;
- Assertive communication;
- Psychosocial life skills.

Professional dimension

- Health education;
- Nursing counseling;
- Community-based prevention;

- Peer education;
- Health advocacy.

3.2.5. Teaching Methods

Experts recommended:

- Contextualized case studies;
- Problem-Based Learning;
- Role-playing;
- Structured debates;
- Participatory workshops;
- Simulation;
- Peer education;
- Community-based projects.

3.2.6. Assessment Methods

Experts proposed:

- Learner Development Portfolio;
- Problem-based case analyses;
- Direct observation;
- Simulation exercises;
- OSCEs;
- Community prevention projects.

3.2.7. Theoretical Frameworks

The theoretical frameworks recommended during the first Delphi round are presented in **Table 2**.

Table 2. Recommended theoretical frameworks identified during the first Delphi round.

Theoretical framework	Role within the educational framework
Competency-Based Approach	Organizing learning around competency development
Theory of Planned Behavior (Ajzen)	Understanding and modifying health-related behaviors
De Ketele's Pedagogical Hexagon	Systemic organization of the educational framework
Chevallard's Didactic Transposition	Transforming scientific knowledge into teachable content
WHO Psychosocial Life Skills Framework	Developing individual and social competencies

The first round therefore established the conceptual and pedagogical foundations of the Health, Medicines and Body Image framework.

3.3. Second Delphi Round: Quantitative Evaluation and Prioritization

Twelve experts participated in Round 2. Each proposal was evaluated using a

five-point Likert scale, with agreement defined as ratings of 4 or 5. The validation results for the overall purpose and general orientation are presented in **Table 3**.

Table 3. Validation of the overall purpose and general orientation.

Evaluated proposal	Agreement (%)	Decision
Integrate aesthetic medication misuse prevention into the A2 nursing curriculum	100.0	Retained
Develop a sustainable educational framework rather than a one-time awareness campaign	100.0	Retained
Adopt a competency-based approach rather than focusing exclusively on knowledge transmission	91.7	Retained
Address pharmacological, psychosocial, and cultural dimensions	100.0	Retained

The validation results for the terminal competency are presented in **Table 4**.

Table 4. Validation of the terminal competency.

Evaluated component	Agreement (%)	Decision
Develop the ability to prevent aesthetic medication misuse among adolescents	100.0	Retained
Simultaneously mobilize scientific knowledge, practical skills, and professional attitudes	91.7	Retained
Develop the ability to analyze social and cultural influences	91.7	Retained
Prepare future nurses to act as health educators	100.0	Retained

The validation of the four-year curricular progression is presented in **Table 5**.

Table 5. Validation of the four-year spiral curricular progression.

Proposal	Agreement (%)	Decision
Organize the framework according to progression from A2 Year 1 to A2 Year 4	100.0	Retained
Adapt educational content to learners' cognitive and professional development	91.7	Retained
Reinforce and progressively deepen learning throughout the curriculum	91.7	Retained
Promote progression from recipient to active participant, peer educator, and professional practitioner	100.0	Retained

The validation of the pharmacological content is presented in **Table 6**.

Table 6. Validation of pharmacological content.

Content	Agreement (%)	Decision
Characteristics of cyproheptadine	100.0	Retained
Characteristics of dexamethasone	100.0	Retained
Distinction between therapeutic use and aesthetic medication misuse	100.0	Retained
Adverse effects and health risks	100.0	Retained

These findings demonstrated strong expert agreement that future nurses should understand the pharmacological characteristics, legitimate uses, potential risks, and distinction between appropriate therapeutic use and aesthetic misuse of the two priority curricular examples.

The validation of psychosocial and behavioral content is presented in **Table 7**.

Table 7. Validation of psychosocial and behavioral content.

Domain	Content	Agreement (%)	Decision
Psychosocial	Body image and socially constructed beauty standards	100.0	Retained
Psychosocial	Influence of peers and social media	100.0	Retained
Psychosocial	Cultural beliefs and social representations	91.7	Retained
Psychosocial	Self-esteem and body acceptance	91.7	Retained
Behavioral	Development of psychosocial life skills	100.0	Retained
Behavioral	Assertive communication	91.7	Retained
Behavioral	Resistance to social pressure	100.0	Retained
Behavioral	Informed decision-making	100.0	Retained

The validation of professional content is presented in **Table 8**.

Table 8. Validation of professional content.

Content	Agreement (%)	Decision
Health education	100.0	Retained
Community-based prevention	100.0	Retained
Peer education	91.7	Retained
Public health advocacy	83.3	Retained

The validation of teaching approaches is presented in **Table 9**.

Table 9. Validation of teaching approaches.

Teaching method	Agreement (%)	Decision
Contextualized case studies	100.0	Retained
Role-playing	100.0	Retained

Continued

Participatory workshops	100.0	Retained
Problem-Based Learning	91.7	Retained
Peer education	91.7	Retained
Simulation	91.7	Retained
Traditional lecture as the primary teaching method	41.7	Not retained

The validation of assessment methods is presented in **Table 10**.

Table 10. Validation of assessment methods.

Assessment method	Agreement (%)	Decision
Continuous formative assessment	100.0	Retained
Learner Development Portfolio (DDA)	91.7	Retained
Assessed simulation exercises	91.7	Retained
Objective Structured Clinical Examination (OSCE)	83.3	Retained
Community-based prevention project	100.0	Retained
Assessment based solely on traditional written examinations	50.0	Not retained

The validation of the theoretical frameworks is presented in **Table 11**.

Table 11. Validation of theoretical frameworks.

Theoretical framework	Assigned role	Agreement (%)	Decision
Competency-Based Approach	Overall curriculum organization	100.0	Retained
Ajzen's Theory of Planned Behavior	Behavioral change	100.0	Retained
De Ketele's Pedagogical Hexagon	Didactic organization	91.7	Retained
Chevallard's Didactic Transposition	Adaptation of scientific knowledge	91.7	Retained
WHO Psychosocial Life Skills Framework	Personal and social development	91.7	Retained

Most proposals achieved the predefined 75% consensus threshold. The only proposals not retained were the use of traditional lectures as the primary teaching method and assessment based solely on traditional written examinations. The first two theoretical frameworks provided the initial conceptual and organizational foundation, while the Delphi process subsequently confirmed the relevance of the additional theoretical perspectives. Thus, the final framework incorporated five complementary theoretical foundations.

3.4. Third Delphi Round: Final Validation

All 12 experts who participated in Round 2 also completed Round 3. The third round used the predefined threshold of $\geq 75\%$ agreement.

The final validation results for the overall structure of the educational framework are presented in **Table 12**.

Table 12. Final validation of the overall structure of the educational framework.

Validated component	Agreement (%)	Agreement count	Final status
Integration of the Health, Medicines and Body Image framework into the A2 nursing curriculum	100.0	12/12	Validated
Organization according to spiral progression from A2 Year 1 to A2 Year 4	91.7	11/12	Validated
Integration of scientific knowledge, psychosocial competencies, and professional practice	100.0	12/12	Validated
Adaptation of the framework to the sociocultural context of Kinshasa	91.7	11/12	Validated
Orientation toward prevention rather than an exclusively corrective approach	100.0	12/12	Validated

The five final validation items yielded 58 agreement ratings out of 60 possible ratings. Overall agreement was therefore 96.7% (58/60). All five final components exceeded the predefined 75% consensus threshold.

4. Discussion

4.1. Principal Findings

The present study developed and validated the Health, Medicines and Body Image educational framework through a three-round mixed-methods Delphi process. The initial panel comprised 15 multidisciplinary experts, of whom 12 completed all three rounds. The final validation demonstrated 96.7% overall agreement across the five final validation items, confirming strong expert agreement concerning the relevance and structure of the proposed framework. The findings indicate that prevention of aesthetic medication misuse should extend beyond pharmacological information and incorporate biomedical, psychosocial, behavioral, professional, and educational dimensions. This orientation is consistent with health promotion approaches that recognize the importance of individual, social, and environmental determinants of adolescent health behaviors [12]. The Delphi approach was appropriate for integrating multidisciplinary perspectives and progressively refining the educational framework [13].

4.2. From Information Transmission to Competency-Based Prevention

The first Delphi round indicated that experts considered simple awareness of medication-related risks insufficient. They emphasized the need to address body image, beauty standards, social pressure, decision-making, and psychosocial competencies. This orientation is consistent with the Theory of Planned Behavior, in which attitudes, subjective norms, and perceived behavioral control contribute to behavioral intentions [14]. It is also compatible with Social Cognitive Theory, which emphasizes reciprocal interactions between personal, behavioral, and environmental factors [15]. The validation of the Competency-Based Approach therefore represents an important feature of the framework. Competence involves the mobilization of cognitive, emotional, and social resources to address complex situations [16], while competency-based education emphasizes the transfer of knowledge and skills into authentic situations [17]. For future nurses, the expected competency consequently extends beyond knowledge of cyproheptadine and dexamethasone. It includes the ability to analyze situations of misuse, identify determinants, communicate with adolescents, and implement context-appropriate preventive interventions.

4.3. Spiral Curricular Progression and Contextualized Learning

Experts validated a four-year spiral curricular progression, beginning with awareness and recognition of aesthetic medication misuse and progressively moving toward scientific understanding, critical analysis, peer education, health communication, professional practice, and community intervention. The validated terminal competency identified in this study integrates scientific knowledge, educational skills, and professional attitudes. This orientation is particularly relevant within the African context, where nurses play a central role in community health education. Strengthening health professionals' competencies has been recognized as a key strategy for improving preventive interventions and responding to emerging public health challenges [18].

This progression is consistent with the principle of spiral curriculum development, whereby concepts are revisited at increasing levels of complexity [19]. It is also compatible with the progressive development of professional nursing competence through experience and practice [20]. The contextualization of the framework to Kinshasa was also validated. This is important because beliefs about body shape, social expectations, peer influence, and medication use may vary across cultural and social environments [21]. Previous research has highlighted relationships between body dissatisfaction, sociocultural beauty ideals, and body-modification behaviors [22]. Studies conducted in African contexts have also documented the importance of perceptions of body size and cultural norms [23].

4.4. Active Learning and Authentic Assessment

Experts expressed strong agreement with active teaching approaches, including

contextualized case studies, problem-based learning, role-playing, simulation, participatory workshops, and peer education. Traditional lectures as the primary teaching method did not reach the consensus threshold. These findings are compatible with educational approaches emphasizing active participation, experience, social interaction, and problem solving [24] [25]. Experiential learning similarly emphasizes the importance of concrete experience, reflection, conceptualization, and active experimentation [26]. Evidence from nursing education also supports the use of simulation-based approaches to develop practical and clinical competencies [27]. The assessment strategy was similarly oriented toward authentic performance. The validated methods included the Learner Development Portfolio, simulation, OSCE, formative assessment, and community-based projects. Such approaches are consistent with competency frameworks that distinguish knowledge from demonstrated professional performance [28]. The OSCE is also an established approach for assessing practical and clinical competencies [29].

4.5. Integrated Theoretical Contribution

A major contribution of the study is the integration of five complementary theoretical foundations:

- 1) The Competency-Based Approach;
- 2) Ajzen's Theory of Planned Behavior;
- 3) De Ketele's Pedagogical Hexagon;
- 4) Chevallard's Didactic Transposition;
- 5) The WHO Psychosocial Life Skills Framework.

These frameworks address complementary aspects of the educational problem: competency development, behavioral determinants, pedagogical organization, transformation of scientific knowledge into teachable content, and psychosocial development. The integration of these perspectives is consistent with approaches recommending the combination of behavioral, pedagogical, and social theories when developing complex health education interventions [30].

The originality of the proposed framework therefore lies in its interdisciplinary and contextualized nature. It does not treat aesthetic medication misuse solely as a pharmacological issue but addresses it at the intersection of public health, education, psychology, behavioral science, and nursing practice.

4.6. Strengths and Limitations

A major strength of the study is the use of a three-round Delphi process involving experts from several relevant disciplines. The use of a predefined consensus threshold and progressive evaluation across rounds also strengthens the methodological transparency of the validation process. However, several limitations should be acknowledged. First, the expert panel was relatively small and was selected purposively, which may limit the generalizability of the findings. Second, 12 of the 15 initially recruited experts completed all three rounds, although the 80% retention rate was acceptable for the present Delphi process. Third, the study

validated the educational content and structure through expert agreement but did not evaluate the framework among nursing students or adolescents. Finally, the study did not measure the prevalence of cyproheptadine or dexamethasone misuse in Kinshasa. Consequently, the 96.7% agreement should be interpreted as expert agreement regarding the framework, not as evidence of intervention effectiveness or population prevalence.

5. Conclusion

This study developed and validated the Health, Medicines and Body Image educational framework for preventing aesthetic medication misuse among adolescents through A2 nursing education in Medical Technical Institutes in Kinshasa. The three-round mixed-methods Delphi process resulted in strong expert agreement regarding the framework's objectives, competencies, content, teaching approaches, assessment methods, curricular progression, and theoretical foundations. The final five-item validation produced 58 agreement ratings out of 60, corresponding to 96.7% overall agreement, with all five components exceeding the predefined 75% consensus threshold. The framework integrates pharmacological, psychosocial, behavioral, professional, and pedagogical dimensions and is organized according to a four-year spiral curricular progression. It emphasizes competency development, active learning, contextualized teaching, and authentic assessment. The findings should be interpreted as evidence of expert agreement concerning curricular content and structure rather than evidence of effectiveness. Further studies are required to implement the framework in nursing education and evaluate its effects on students' knowledge, attitudes, behavioral intentions, competencies, and professional practices. Future quasi-experimental and longitudinal studies should also assess its effectiveness and transferability across additional nursing training institutions.

Data Availability Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request. The data are not publicly available in order to protect participants' confidentiality and comply with the ethical requirements governing this research.

Author Contributions

- Christian Matondo Dianzenza: Conceptualization, Methodology, Validation, Investigation, Data Collection, Formal Analysis, Interpretation of Results, Writing Original Draft, Writing Review & Editing, Project Administration.
- Guillaume Bofio Bina, Ebuel Mukau, and Marie-Claire Omanyondo Ohambé: Methodology, Validation, Formal Analysis, Critical Review of the Manuscript, Scientific Supervision.
- Emery Kafinga Luzolo: Supervision, Validation, Critical Review of the Manuscript, Project Administration.

All authors contributed to the interpretation of the findings, critically reviewed and approved the final version of the manuscript, and agreed to be accountable for all aspects of the work.

Consent to Participate

Written informed consent was obtained from all Delphi experts before participation. Participation was voluntary, and participants were free to withdraw at any time without consequences.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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