

Representativeness in first-aid course materials for vocational secondary education: A mixed-methods content analysis

E. Tanghe

Abstract Representative course materials are an essential component of high-quality first-aid education, yet research in vocational secondary education is lacking. This study analyses teacher-developed first-aid course materials in Flemish vocational education and training (VET) programmes within the health and welfare domain. Representativeness is defined as the extent to which course content (1) reflects demographic diversity, and (2) explicitly and accurately portrays variations in clinical symptoms by sex and skin tone. Using a structured content analysis of 40 courses with a validated coding scheme and second-order synthesis, followed by triangulation with 20 in-depth interviews, we examined two dimensions: visual representation and textual clinical representation. The results reveal consistent patterns: men and individuals with light skin are over-represented, and variations in symptoms on darker skin and in women with myocardial infarction are scarcely addressed. Interviews expose a gap between intention and implementation: teachers acknowledge the importance of representativeness but integrate it only minimally, due to lack of knowledge and awareness, guidelines and suitable resources. This structural gap increases the risk of diagnostic inaccuracies and implicit bias in first-aid provision. The article advocates for awareness-raising, clear curriculum guidelines, accessible image banks and targeted professional development through structurally integrated collaboration amongst key stakeholders.

Keywords representativeness, healthcare education, teaching materials, implicit bias, vocational education and training

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1 Introduction

Every care recipient deserves high-quality care. As consistently demonstrated by empirical studies, however, inequalities persist in access, diagnostic accuracy, treatment and communication. These inequalities particularly affect patients from minority ethnic backgrounds (Shao & Feng, 2022; Steinmetz, 2019), women (Martin et al., 2016; Merone et al., 2024) and people with lower socio-economic status (Dickman, Himmelstein, & Woolhandler, 2017), with measurable consequences for health outcomes (Wise, 2022; Yearby, 2018). Education plays a critical role in preparing healthcare professionals who are alert to barriers caused by bias and committed to ensuring equitable access to care (Dutta et al., 2021). This role aligns with the current debate in Flanders and the Netherlands concerning the quality of learning resources in education (De Man, 2022; Dood et al., 2024). One underexplored source of such inequities lies in vocational education and training (VET): the representativeness of first-aid course materials used to prepare future care professionals.

This study examines the extent to which teacher-developed first-aid course materials in Flemish VET programmes reflect societal and clinical diversity. It also identifies factors influencing the choices and perceptions of teachers regarding representativeness. We focus on teacher-developed first-aid course materials, conceptualising representativeness as the extent to which course content (1) reflects the demographic diversity of patients and (2) accurately and explicitly portrays symptomatic presentations across different skin tones and for women. Accordingly, and in line with our research questions, our analysis addresses two dimensions of clinical representation: (1) visual and (2) textual.

In addition to examining the materials, we explore how teachers perceive the representativeness of first-aid course materials and their own teaching practices, as well as factors that shape these perceptions and choices. We start by presenting a theoretical framework that situates the study within the societal and educational context, outlining why representativeness in learning resources matters for equitable care.

2 Theoretical framework

2.1 Social and educational context

Education in Flanders (Belgium) and the Netherlands takes place in a society characterised by superdiversity in aspects including ethnic background, gender, social class and migration history (Geldof et al., 2023; Jennissen et al., 2018; Statbel, 2025). This has direct implications for educational goals, content and practices: schools have a societal responsibility to provide optimal learning and participation opportunities for all students, regardless of background (Agirdag, 2020; Banks & Banks, 2016; OECD, 2018). In this light, the issue of representativeness – defined as resources that reflect societal diversity in a

realistic, balanced and non-stereotypical way, enabling students to recognise themselves and others – is not optional but a necessary condition for high-quality and equitable education (Banks & Banks, 2016).

Awareness of the importance of representativeness is growing, as evidenced by the prevalent attention to diversity-responsive education and learning materials in policy and research (Dood et al., 2024; Rodríguez, Garcia, & Bruillard, 2019; Smets, 2024). One core quality indicator in the Flemish ‘*Kwaliteitsalliantie Leermiddelen*’ explicitly asks: ‘Does the learning resource illustrate respect for a diverse society?’ (3.10) and, as part of Quality Criterion 3: ‘The learning resource guarantees equal opportunities to learn for all students’ (De Man, 2022). Teachers play a key role. By critically selecting, interpreting or adapting materials, they prevent the reproduction of normative assumptions and ensure equal opportunities (Agridag, 2020). Despite these efforts, room for progress remains (Dood et al., 2024).

Educational freedom, enshrined in the constitutions of the Netherlands (Article 23 §2) and Belgium (Article 24 §2), grants schools autonomy in determining and achieving objectives (De Man, 2022). This autonomy extends to material selection and is influenced by cost, target group, subject specificity, educational context and pedagogical approach (Baas, Saab, & Post, 2024a, 2024b; De Man, 2024; Wilkens & Reints, 2022). Quality initiatives (e.g. MILK, *Leerpunt*) provide criteria and quality labels (CLU, 2025; Leerpunt, 2025), but they do not guarantee evidence-based teacher choices or implementation effectiveness (Reints & Wilkens, 2019; Wilkens & Reints, 2022). Teachers often develop their own materials (De Man, 2022), requiring strong subject and pedagogical competence. These materials nevertheless tend to receive less oversight (Baas, Saab, & Post, 2024a, 2024b; Wilkens & Reints, 2022). In practice, little is known about how teachers choose between self-developed and publisher-provided materials, and internal quality control is often absent, given that self-developed materials are not necessarily shared with colleagues or school leaders – unless internal agreements exist. This study focuses on teacher-developed courses.

2.2 Representativeness in healthcare education

Scholars identify unrepresentative study materials in formal healthcare-education programmes as one reason for healthcare inequalities (Louie & Wilkes, 2018; Martin et al., 2016). The resulting inadequacy in preparing healthcare professionals to observe, interpret and anticipate symptoms (Pusey-Reid et al., 2023) contributes to diagnostic errors – a major cause of avoidable morbidity and mortality (Ryle, 2019). The curriculum of healthcare educational programmes is thus critical, through both explicit content and the ‘hidden curriculum’ – the socialisation process reflected in intended or unintended messages, interpersonal interactions and the broader institutional culture

(Turbes, Krebs, & Axtell, 2002). This hidden curriculum is normative and reinforces dominant beliefs, values, norms and stereotypes, as also reflected in teaching materials (Lee, 2014; Rosenberg, 2012). Unrepresentative study materials may also foster prejudice against certain minority groups (Louie & Wilkes, 2018). Medical curricula are not culture-neutral; they are based largely on 'white', Western cultural world views (Krishnan et al., 2019), with non-dominant groups marginalised as exotic and deviant (Benoit et al., 2020; Zanting et al., 2020). Such representations and implicit messages can lead to stereotypical thinking, fostering assumptions that most members of a certain group share specific characteristics (Krishnan et al., 2019). These often-hidden stereotypes can generate implicit bias (Benoit et al., 2020; FitzGerald & Hurst, 2017; Schnierle, Christian-Brathwaite, & Louisias, 2019).

In recent decades, awareness has increased concerning the need for representative and inclusive study materials for healthcare education (Benoit et al., 2020; Louie & Wilkes, 2018). In practice, however, such materials appear relatively scarce or shielded. The scarce current studies (Dijkstra, Verdonk, & Lagro-Janssen, 2008; Keuken et al., 2007) tend to focus on specialised educational programmes for healthcare education (Dekkers et al., 2023; Rbia, van der Heijden, & van Hees, 2024), with noticeably delayed progress in medical textbooks (Merone et al., 2024). An additional objective of this study is therefore to analyse course materials to determine whether the aforementioned awareness is also reflected in basic learning content (particularly in relation to first aid) in undergraduate vocational and education training (VET) programmes in health and welfare, in line with the diversity present in society (Steinmetz, 2019). We found no research results from content analyses of first-aid course materials. We focus on two related clinical domains: observations of/instructions for skin colour and sex-related symptoms. This focus is embedded within a broader analysis of representativeness, including the overall distribution of images depicting men and women, as well as individuals with different skin tones.

2.3 Key dimensions of representativeness

2.3.1 Visual observation of skin

During anamnesis, observing symptoms provides an important foundation for understanding differences in presentation across individuals (Hanson et al., 2010). Clear protocols and training in observational skills are necessary to ensure inclusive assessment practices (Hanson et al., 2010). Visual observation of the skin can reveal differences that may otherwise be overlooked, especially in darker skin tones (Raynor et al., 2021; Shao & Feng, 2022). Healthcare professionals should be aware of how to distinguish between typical and atypical presentations across diverse skin tones (Pusey-Reid et al., 2023).

Recognising differences in clinical presentation on darker skin tones exemplifies content integration within the pedagogical dimension of culturally responsive teaching (Theeuwes et al., 2019). The tendency to overlook such differences reflects the phenomenon of ‘colour blindness’ – disregarding diversity and focusing exclusively on the individual (Agirdag, 2020; Hagedaars et al., 2023). By failing to account for these differences, educational materials risk perpetuating inequities and overlooking the sociocultural realities that shape the experiences of both learners and patients.

2.3.2 Sex-related symptoms

Sex-related – referring to the biological differences between men and women (Dijkstra, Verdonk, & Lagro-Janssen, 2008) – health issues are diseases or conditions that are unique to, more common or more serious in men or women, including diseases for which the aetiology, manifestations, risk factors, course or interventions differ (Verdonk et al., 2009). Historically, women have been under-represented in medical research, except in the fields of reproductive medicine, psychiatry and geriatrics (Merone et al., 2024; Verdonk et al., 2009). Knowledge about research on men has been generalised to women (Holdcroft, 2007; Merone et al., 2024), even though the clinical presentation of symptoms can be different in women (Dijkstra, Verdonk, & Lagro-Janssen, 2008; Keuken et al., 2007). A commonly cited illustration of this broader issue is myocardial infarction (heart attack), for which medical knowledge has historically been described and taught primarily from a male reference perspective, resulting in systematic gaps in the representation of women in educational materials. This creates knowledge gaps concerning both men and women, as also reflected in the curricula and textbooks of healthcare educational programmes (Merone et al., 2024). Despite awareness, healthcare professionals do not necessarily have all the information required for effective prevention, diagnosis and treatment (Verdonk et al., 2009). From an integrated perspective, which emphasises that every care recipient deserves high-quality care regardless of sex, future healthcare professionals should learn about the effects of sex-related health issues and develop associated competences (van der Meulen et al., 2017).

2.4 Research gap and aim

Equitable care requires preparing future healthcare professionals to recognise symptom diversity related to skin tone, sex and other characteristics. This topic has nevertheless received limited attention in recent years (Adekun, Onyekaba, & Lipoff, 2021; Pusey-Reid et al., 2023). Even when local demographics influence the frequency of use, high-quality care requires consistent preparation across all contexts (Shao & Feng, 2022).

One critical question concerns whether this principle is reflected in

undergraduate vocational education and training (VET) within health and welfare programmes. There is virtually no evidence on the representativeness of first-aid course materials in these programmes, despite their foundational role in shaping awareness amongst students entering care professions or progressing to higher education. Educational publishers, specialised organisations and teachers share responsibility for providing up-to-date, representative resources. Building such materials requires both technical accuracy and awareness. This includes self-awareness amongst teachers (Gopal et al., 2021; White et al., 2018) and pedagogical strategies for fostering awareness in students (Benoit et al., 2020; Gonzalez, Lypson, & Sukhera, 2021).

Despite policy initiatives and increased recognition of diversity-responsive education, empirical evidence concerning teacher-developed first-aid materials for VET is scarce. To address this gap, we systematically analyse these materials and explore the perceptions of teachers and factors influencing their choices.

3 Research design and methodology

3.1 Research context

First aid is addressed in all undergraduate VET programmes within the domain of health and welfare at Levels 4 and 5 of the European Qualifications Framework, which train students for professions including childcare workers, care assistants and nursing associates. The curricula of these programmes include observation within the context of anamnesis as a central component. Representative first-aid (and other) course materials are therefore important, including a focus on the specific detection of symptoms in darker skin tones or in women. We examine the representativeness of teacher-developed materials in first-aid education for VET programmes.

3.2 Research model and research questions

We apply content analysis (Cohen, Manion, & Morrison, 2011) to investigate the representativeness of current teacher-developed first-aid course materials for undergraduate VET programmes within the domain of health and welfare in Flanders, triangulated with in-depth interviews with teachers. The following sub-questions are examined:

- To what extent do images in first-aid course materials represent sex and ethnicity (focusing on darker skin tones) and specific symptoms when observing patients with darker skin tones?
- To what extent does the text in first-aid course materials represent specific symptoms of myocardial infarction in female patients and when observing skin in patients of colour?
- How do teachers perceive the representativeness of first-aid course materials and their own teaching practices?

- Which factors influence the choices and perceptions of teachers regarding representativeness in first-aid course materials and their own teaching practices?

3.3 Data collection

3.3.1 Sampling and inclusion criteria

The materials analysed were used in undergraduate VET programmes for generic professions (e.g. childcare workers, care assistants and nursing associates) in health and welfare (Levels 4-5 EQF) during the period 2024-2025. These programmes share common learning objectives for first aid, enabling comparability across Dutch-language education in Flanders and Brussels-Capital. Materials had to contain a dedicated section on first aid; courses without such content were excluded. When identical materials were used in different teaching groups with only a different cover sheet, they were counted once.

3.3.2 Recruitment and anonymity

Course materials were collected through teacher networks. The two open calls mentioned only that the research involved first-aid course materials, without further specifying the focus. This approach minimised priming bias in submissions.

Participation was voluntary and self-initiated, resulting in a convenience sample (Battaglia, 2008). In all, 43 submissions were received, of which 40 courses, presentations or roadmaps that served as courses met the inclusion criteria. Each course was assigned a unique identifier to ensure anonymity.

3.3.3 Respondents

All teachers submitting course materials were invited to complete an online survey to provide background data. The survey consisted of closed questions and was completed anonymously. Of 35 respondents, 31 provided complete data for analysis. Respondents (Appendix 1) were active in Dutch-taught education in Flanders or Brussels-Capital, with more than half working in urban contexts. More than 60% held at least a bachelor degree, and 84% had obtained teaching qualifications through external transfer, having earned their qualifications as lateral entrants through an abbreviated educational bachelor or master programme, a graduate programme, or an equivalent pathway within the Flemish teacher-education system. Professional experience in the health and welfare sector was common (87%), and more than 60% of respondents had been personally involved in developing the submitted materials. Of all courses, 63% had been updated recently (in the period 2023-2025).

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Ethical approval was obtained from the Social Sciences and Humanities Ethics Committee (SHW_2025_135), and the study adhered to the Declaration of Helsinki. Participants were fully informed about anonymity, data use and the absence of risk.

3.3.4 In-depth interviews

Following the content analysis, semi-structured interviews were conducted with 20 teachers to contextualise and deepen the findings. Respondents were recruited through an invitation to previous respondents who shared course materials and through social networks especially for teachers who used other course materials. Ten participants used self-developed materials, and ten relied on resources from publishers or specialised organisations. Interviews explored perceptions of symptom variability, attention to 'atypical' symptoms and the practical implementation of representativeness in teaching materials. To reduce socially desirable responses, initial questions focused on uniform symptom presentations before introducing aspects of representativeness. Respondents then rated the importance of representativeness and evaluated their current materials. Interviews also examined barriers, needs and influencing factors. All interviews were fully anonymised and analysed to enable triangulation with the content analysis. For teachers who provided course materials, the interview data were not linked to the previous analysis of their course materials.

Background characteristics of the teachers who used course materials from educational publishers or specialised organisations (Appendix 2) were collected during in-depth interviews to assess comparability with the group using self-developed materials. These ten respondents did not submit course materials themselves and did not participate in the anonymous survey described in Section 3.3.3. They worked in Dutch-taught education in Flanders or Brussels-Capital and had substantial teaching experience: 80% had ten or more years of experience, while the remaining 20% had between two and nine years. All respondents had professional experience in the health and welfare sector, primarily in caring or nursing roles, with 70% reporting at least five years of experience (including 40% with 10-19 years). In terms of qualifications, more than half held at least a bachelor degree and 30% had a master degree, and all had obtained their teaching qualifications through external transfer. Regarding context, half of the respondents worked in rural settings, 30% in urban contexts and 20% in metropolitan environments.

3.4 Data processing

3.4.1 Coding procedure

The content analysis was based on a structured, multi-step approach to ensure transparency and methodological rigour. Analytic criteria developed directly

from the research questions served as the framework for systematically screening and coding both textual and visual elements in the course materials. Consistent with established principles of content analysis (Krippendorff, 2019), these criteria were designed to enable transparent, replicable and context-sensitive interpretation.

To test clarity and applicability, a pilot analysis was conducted on five courses by two researchers, one of whom was not involved in the study or its substantive theme. The researchers independently coded the sample using the preliminary criteria, after which ambiguities and discrepancies were discussed and resolved. This process led to refinement and operationalisation of the coding scheme. The resulting framework provided the basis for three subsequent coding rounds on the full dataset, performed by a single researcher. After each round, results were systematically compared across rounds to ensure consistency. Although these rounds were conducted by one researcher, reliability was safeguarded through the refined coding framework, systematic cross-round comparison and peer debriefing. This iterative approach reinforced analytic rigour.

The analysis extended beyond descriptive coding. After the coding rounds, a second-order analytic synthesis was undertaken to identify recurring patterns, relationships and overarching tendencies across the materials. This phase integrated first-order findings into higher-level conceptual insights relevant to the research questions. Frequencies were used only to support interpretation, and not as a primary analytic focus.

The identified patterns were refined through iterative comparison across coding rounds and materials, and subsequently informed the interview phase by providing the empirical basis for designing the in-depth interviews. This sequential and iterative approach aligns with qualitative research designs where multiple data sources mutually inform interpretation (Onwuegbuzie, Frels, & Hwang, 2016). Coding during the pilot was performed independently by two researchers, ensuring an external perspective and reducing bias. Rigour and trustworthiness were safeguarded through independent coding, iterative consensus procedures, a documented coding protocol and peer debriefing. Illustrative textual and visual examples were retained to anchor analytic claims in the underlying data, rather than relying solely on quantitative summaries.

3.4.2 *Specific selection criteria*

The analysis applied explicit selection criteria to ensure consistency and validity across visual and textual elements. Course materials (4-197 pages) were first screened for images depicting patients, distinguishing between photographs and drawings (hereinafter 'images'). Representations limited to single organs, isolated body parts or annotated photographs (e.g. hyper-stretching of the tongue) were excluded, as were cartoons, separate analogue exercises and external links to online resources or videos. Each image illustrating a first-aid procedure was

counted individually to capture the actual frequency of representation of men, women and people of colour. This approach accounted for sequences using multiple images to demonstrate step-by-step actions, as each step constitutes a distinct depiction of an individual. In some cases, teachers intentionally varied care recipients across steps, reinforcing the need to treat each image as a separate unit for accurate assessment of representativeness. Images were coded according to observable external characteristics: sex (male, female or indeterminate) and skin tone (light, person of colour or indeterminate, e.g. monochrome images). Coding was based solely on visual cues, and not on self-identification or author intent. We also examined whether images included conditions typically associated with observable changes in skin colour.

Text analysis was conducted to identify references to specific symptoms in women with myocardial infarction and for observations of the skin for conditions involving skin discolouration and related concerns.

The coding scheme provided the foundation for the tables presented later in this article. To minimise subjectivity, the entire coding process was repeated three times for each course.

3.4.3 Positionality

Although the authors' professional backgrounds in teacher education (and healthcare) may influence interpretation, they could also enhance sensitivity to diversity-responsiveness. Reflexive practices – including peer debriefing and transparent documentation – were applied to strengthen credibility.

4 Results

Where relevant, results are reported both as absolute counts (number of courses in which a feature occurred or number of mentions within courses) and, where informative, as percentages to aid comparability across the dataset.

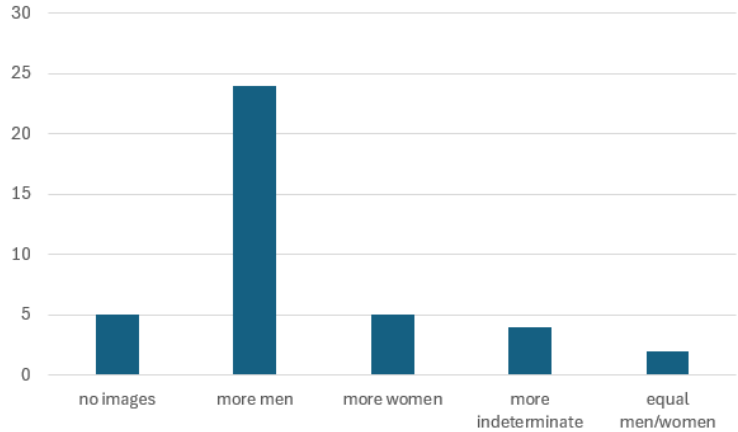
4.1 Representativeness of images

Five courses ($n=12.5\%$) contained no images (Figure 1; Appendix 3). For the 35 course materials with visual support (87.5 %), the proportion of images relative to the number of pages varied between 3% and 66%.

Across these materials ($N=40$), initial patterns indicate an imbalance of sex representation. In 24 courses (60 %) with visual support, males (including boys) were depicted more frequently than females, with male-to-female ratios ranging from 52% to 100% (Fig. 1). Conversely, in five courses (12.5 %), females were depicted more often (with ratios between 13% and 33%), with two courses (5 %) exhibiting equal representation. One notable example (2.5 %) concerns illustrations of hyperventilation, with all images depicting female patients – raising questions about the rationale behind gender-specific choices for certain pathologies.

Figure 1

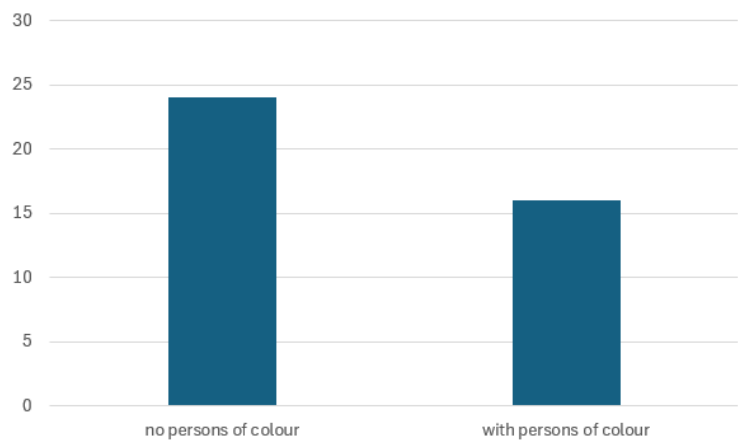
Visual sex representation of patients in first-aid course materials (N=40), y-axis showing the number of courses in which each representation occurred (each course counted once)



Ethnic representation was even more limited (Figure 2; Appendix 3). In 24 courses (60 %), no patients of colour were depicted. In the remaining 16 courses (40 %), individuals with lighter skin tones were strongly over-represented, with proportions ranging from 76% to 99%. Only three images featured a person of Asian origin, and only one course (2.5 %) included images showing symptoms on darker skin tones.

Figure 2

Visual ethnic representation of patients of colour in first-aid course materials (N=40)



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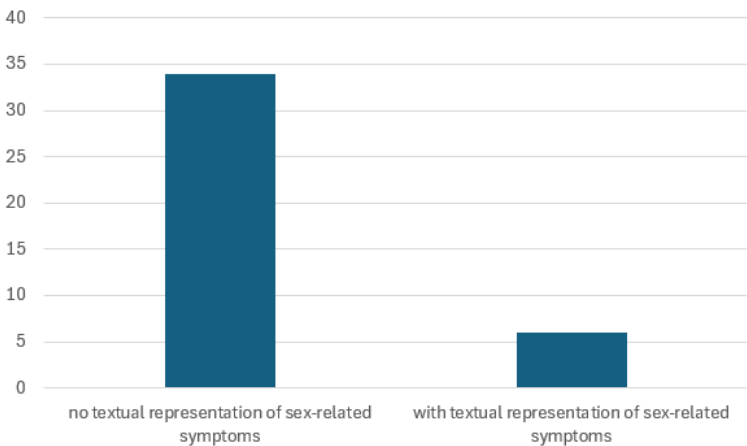
These findings reveal consistent tendencies: visual materials featured predominantly male patients and individuals with lighter skin tones, with few, if any, depictions of symptom variability across skin tones. Such patterns suggest a structural lack of representativeness in first-aid course materials, warranting further exploration in the subsequent analysis.

4.2 Representativeness of text

Initial patterns indicate that six courses (15 %) addressed ‘non-specific’ or ‘aspecific’ symptoms in patients with myocardial infarction (Figure 3; Appendix 4). In one course (2.5 %), this reference consisted solely of a warning without symptom specification. The same course noted that ‘elderly people do not have typical symptoms’. The remaining five courses (12.5 %) explicitly associated non-specific symptoms with women, albeit with considerable variation in symptoms.

Figure 3

Textual representation of sex-related symptoms in first-aid course materials (N=40)



Consistent tendencies show that symptoms described for women included: pain in the upper abdomen (4 mentions), stomach pain (1), nausea (3), dizziness (1); shortness of breath (5); prolonged fatigue (1); anxiety (1); (radiating) pain in teeth (4), jaws (5), or armpit (1); pain between the shoulder blades (5); back pain (2); neck pain (1) and flu-like sensations (3). Terminology differed across courses (e.g. ‘pain in teeth and jaws’, ‘pain radiating to teeth and jaws’).

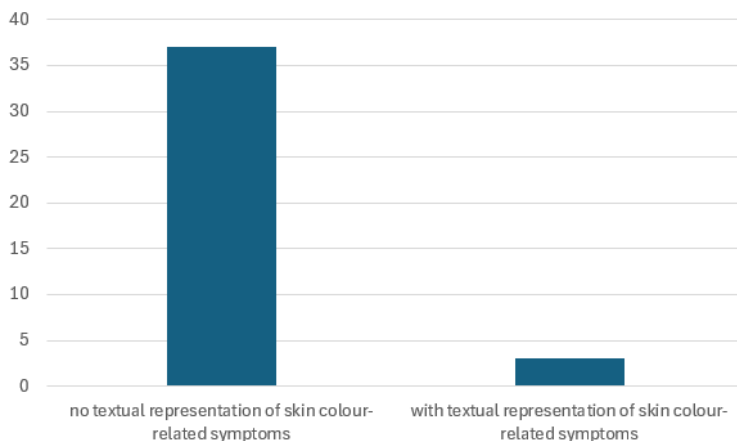
Two courses (5 %) explicitly stated that ‘because of this aberrant image, complaints in women are often overlooked’. The framing of symptoms as ‘atypical’ was not problematised, however, raising interpretive questions concerning the extent to which symptoms are considered ‘standard’ in men and ‘abnormal’ in women? One course (2.5 %) flagged aspecific symptoms with an ‘i’

(‘information’), leaving unclear whether this denotes ‘important information’ or merely ‘an interesting fact’.

Three courses (7.5 %) specifically addressed symptom observation in people of colour (Figure 4). Pallor in darker skin tones was mentioned three times; cyanosis and blistering were each noted once. Notably, the term ‘blank’ appeared in four courses (10 %).

Figure 4

Textual representation of symptoms related to skin colour in first-aid course materials (N=40)



In a few courses, inclusivity extended beyond symptom description, addressing adaptations for abdominal thrusts in pregnant women, overweight individuals or people in wheelchairs.

These patterns suggest persistent tendencies in framing symptoms as gendered and, to a lesser extent, ethnicity-related. The language used (e.g. ‘atypical’, ‘blank’) may implicitly reinforce normative assumptions about male symptom presentation. This warrants consideration in relation to diagnostic vigilance and inclusivity in clinical education.

4.3 Teachers’ perspectives on representation

To contextualise our findings, we analysed data from in-depth interviews to explore how teachers perceive and address representativeness in practice.

Of the respondents using self-developed materials ($n=10$), seven spontaneously acknowledged symptom variability (70 %), explicitly referencing gender differences in myocardial infarction symptoms (2 mentions) and observation challenges in individuals with darker skin tones (3). Two respondents (20 %) reported integration of these topics in their courses (1 for each topic),

three noted (30 %) coverage only through oral or supplementary materials (e.g. presentations, attachments on the electronic learning platform; heart attack (myocardial infarction): 1; skin tone: 3). Reported reasons included lack of knowledge (4), preference for general content (3), not having considered it (7) and unawareness of omission (1).

I really pay too little attention to that, now that you mention it. For me, it's mainly about the general symptoms because, in the care programme we don't need to go too deep into that. Our students mostly do internships in residential care centres, and diversity there is still very limited. (R6)

I consider this a supplement, not part of the basic knowledge, because it's also not included in the specialised material I rely on and wasn't covered in the course I attended. (R20)

Of the respondents using other materials ($n=10$), seven indicated symptom differences (70 %) (heart attack: 3 mentions; skin tone: 6). Two (20 %) reported inclusion in courses and oral explanation for heart attack, one (10 %) for skin tone. Five (50 %) noted oral or supplementary coverage only (heart attack: 5; skin tone: 1; 1 respondent for both themes). Reasons for partial or complete absence mirrored those of the first group: lack of knowledge (4), generalisation (4), not considered (5) and unawareness (3).

I hadn't thought that far yet. That's actually a good suggestion. (R8)

Respondents consistently recognised that symptoms are not uniform and that representativeness (e.g. skin colour, gender) affects observation and diagnostic alertness. Curricular integration nevertheless remains weak, with these aspects rarely explicit in texts or illustrations.

4.4 Teachers' perspectives on representativeness in first-aid education

Although only one respondent (10 %) using self-developed materials and two respondents (20 %) using alternative course materials spontaneously associated 'representative course material' with 'reflection of societal diversity', its normative importance was widely acknowledged. Strong emphasis on representativeness (on a 10-point scale) emerged in both groups (self-developed: $M=8.9$; other: $M=8.7$), even when it had not been included in first-aid training materials.

Every person we can save because of this... is one gained. (R18)

Self-assessed ratings of representativeness were markedly lower. For both groups, seven respondents (70 %) each scored 0-4/10 (self-developed: $M=4.14$; other $M=4.3$). Across both groups, efforts to enhance representativeness focused primarily on written case studies (e.g. by varying names, gender, relationships and ethnic origins).

I do use names like Ahmed and Jan and Piet... but beyond that, I hadn't really thought about it...That's something I need to look into. (R8)

Regarding visual materials, respondents expressed an intention to achieve representativeness, but considered this more challenging. Clinical representativeness remains underdeveloped in both textual and visual components of first-aid course materials.

4.5 Factors influencing teachers' choices and perceptions of representativeness in first-aid education

Interview analysis shows that the planned modernisation of Flemish education (the third grade of secondary education, 2023-2026) was perceived both as an opportunity for revising self-developed materials (1 mention) and as a barrier due to overlapping reforms limiting school capacity (3). Limited diversity in future professional contexts (1) and teaching teams (2) was challenging for some, whereas others taught diverse classes where students question first-aid practices, and care teams were diverse (3). Two respondents elicited students' experiences but doubted their accuracy. Lack of representativeness in curriculum objectives and guidelines (2), linked to insufficient accurate information and usable images constituted a major obstacle. Teachers relying on specialised organisations or publishers stressed dependence. Despite slight progress (6), overall representativeness remains limited, with clinical representativeness nearly absent (9). Three respondents noted that this issue had been ignored in their prior education, and three reported greater awareness after specific training with concrete examples.

Overall, these findings indicate that structural factors – curriculum objectives, resource availability and prior training – strongly shape implementation. In the absence of explicit guidelines or resources, representativeness remains incidental and largely dependent on teachers' personal knowledge and commitment.

5. Discussion

5.1 Main findings

This mixed-methods study provides the first systematic content analysis of teacher-developed first-aid course materials in Flemish non-specialist VET

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healthcare programmes, examining three dimensions of representativeness – visual (sex, skin tone) and textual (clinical content related to sex and skin tone) – and triangulating the material analysis with 20 indepth interviews. Initial patterns indicate consistent underrepresentation across these dimensions, with potential implications for observational accuracy and bias in firstaid education. These findings contribute to ongoing debates on quality and diversity-responsive educational resources in Flanders and the Netherlands (Agirdag, 2020; De Man, 2022). They align with international scholarship on culturally sensitive, inclusive health-education curricula (Benoit et al., 2020; Louie & Wilkes, 2018).

The most significant gaps in course materials were both visual and textual. Images predominantly portrayed male patients with lighter skin tones. Variations in symptom presentation across skin tones were virtually absent. Visual observation of skin can provide critical information for identifying potential conditions and facilitating early diagnosis and treatment (Carter, Newberry, & Leonard, 2023; Everett, Budescu, & Sommers, 2012). In first-aid materials, however, such observations were primarily standardised for lighter skin tones, with little if any guidance for darker skin tones. This lack of representativeness may lead current and future healthcare professionals to overlook important clinical signs, as highlighted in previous studies (Pusey-Reid et al., 2023; Raynor et al., 2021). These findings confirm patterns documented in prior research on skintone representation (Adelekun, Onyekaba, & Lipoff, 2021; Dekkers et al., 2023; Rbia, van der Heijden, & van Hees, 2024; Shao & Feng, 2022) and echo evidence of male and lightskin predominance in medical education (Louie & Wilkes, 2018; Martin et al., 2016).

Textual references to sex-related symptoms of myocardial infarction appeared in only a minority of courses and were inconsistent in terminology, even though these descriptions were all based on the same source. In addition to possible incorrect presentation, merely mentioning ‘other symptoms in women’ without explicitly including them leads to knowledge gaps for both current and future healthcare professionals, as noted in previous research (Merone et al., 2024). It is important for teachers to consider the perceptions they may be creating by how they present information.

Words matter in this context: despite the fact that the term *blank* is no longer recommended for describing skin tones – given Belgium’s colonial history and its associated value judgments (Agirdag, 2020; Kanobana, 2021; Zeegelaar et al., 2021) – it was still present in 10% of the courses analysed. Moreover, guidance for recognising symptoms in darker skin tones was rare, underscoring the persistence of terminology and practices with problematic connotations documented in previous research. Symptoms of myocardial infarction in women were frequently described as ‘atypical’ or ‘non-specific’. Such framing can be linked to the historically documented under-representation of women in medical

research (Verdonk et al., 2009) and the subsequent generalisation of research findings to this group (Holdcroft, 2007; Merone et al., 2024). One critical question concerns the extent to which teachers are aware of these biases and explicitly address them in their teaching practices.

In-depth interviews revealed a gap between intention-implementation. Although many teachers assign strong value to representativeness, its actual integration into teaching materials remains limited and often superficial, focusing primarily on varying personas in case studies rather than embedding clinical representation. When representativeness is addressed, it is typically through oral commentary or supplementary resources, rather than through core texts or visuals. Clinical representation (e.g. symptom variability across sex and skin tone) remains underdeveloped, even though respondents acknowledged its importance. Barriers include a lack of curriculum objectives and clear guidelines, dependence on publisher materials with limited clinical representativeness, insufficient resources and gaps in prior training. Awareness and expertise vary considerably among teachers, and some remain unaware of omissions or perceive diversity as non-essential.

Systemic determinants further constrain implementation. Although most courses targeted urban contexts, depictions of care providers of colour were rare, and one third of the materials had not been updated for over three years. These findings suggest that, without structural guidelines and institutional support, implementation remains incidental and reliant on individual initiative (De Man, 2024; Reints & Wilkens, 2019; Wilkens & Reints, 2022). Despite strong endorsement by some teachers, self-assessed implementation scores were notably lower, underscoring a persistent gap between intention and practice. This reflects broader trends in health education, where structural constraints and insufficient instructor expertise impede diversity (Benoit et al., 2020; FitzGerald & Hurst, 2017; Schnierle, Christian-Brathwaite, & Louisias, 2019). It also aligns with research on implementation intentions, which shows that forming intentions alone rarely guarantees behavioural change, particularly in educational contexts (Dittrich & Eloff, 2022; Gollwitzer, 1999).

Taken together, these tendencies warrant coordinated action at the programme, publisher and policy levels to address gaps in curriculum objectives, resource availability and teacher preparation (De Man, 2024; Tanghe, Smets, & Schelfhout, 2024). Strengthening learning resources and professional development is essential to improving observational guidance across sex and skin-tone variations, avoiding language that reinforces a single normative reference group and mitigating implicit bias in first-aid training. Given the critical and unique role of teachers in shaping diversity-responsive future healthcare professionals (Dutta et al., 2021), institutional and systemic support is indispensable.

5.2 Limitations and directions for future research

This study has several limitations. First, it is based on a convenience sample, which limits generalisability beyond teacher-developed first-aid course materials in Dutch-taught vocational education in Flanders and Brussels-Capital, and comparable contexts where teachers have similar autonomy. Second, while triangulation with in-depth interviews strengthens validity, our interviews reflect teachers' self-reported perceptions. Claims about oral explanations or supplementary materials were not independently verified through classroom observation, and implementation fidelity could therefore not be assessed.

A further limitation concerns the scope of material analysis. Only teacher-developed resources were examined in detail; materials from specialised organisations or educational publishers – although widely used – were not systematically analysed. As a result, comparisons rely on perceived rather than empirically assessed differences.

In addition, the categorisation of sex and skin tone relied on binary classifications, which do not capture the full spectrum of diversity or cultural nuance. While this approach ensured clarity and analytic consistency, it may oversimplify complex identity markers. To minimise interpretive bias, an 'indeterminate' category was applied, and analyses were repeated three times.

Finally, this study formulates conceptual and practice-oriented recommendations to improve representativeness in first-aid course materials, but it does not empirically evaluate their effectiveness. The findings are based on content analysis, interviews and literature synthesis rather than on controlled trials or longitudinal designs. Future research should therefore first focus on the systematic improvement and implementation of more inclusive firstaid materials in educational practice and on barriers to their sustained adoption; only subsequently can questions of effectiveness, such as impacts on learning, confidence or equity in care delivery, be meaningfully addressed.

5.3 Recommendations

To strengthen the practical relevance of vocational education and integrate inclusivity without adding undue burden to existing professional development programmes, we propose a coherent and integrated set of recommendations by stakeholder group, as summarised in Table 1, making explicit their complementary roles across the educational system. These recommendations directly respond to the implementation gap identified in practitioner interviews: although teachers endorse representativeness, adoption is constrained by missing structural supports, including clear guidelines, accessible resources and targeted professional development.

By clarifying responsibilities across the educational field, the recommendations connect material development, teacher professional development and broader structural conditions. They build on evidence

that unexamined language and unrepresentative exemplars can perpetuate diagnostic inequities (Wise, 2022; Yearby, 2018), whereas explicit observation training and diverse visual representation support diagnostic accuracy and confidence (Pusey-Reid et al., 2023; Raynor et al., 2021; Shao & Feng, 2022). Embedding representativeness into routine processes (e.g. auditing, screening, co-creation and scheduled updates) could close the gap between intent and impact, normalising inclusive practice and advancing equity in first-aid education. In what follows, we briefly elaborate these recommendations, highlighting their interconnections as reflected in Table 1 and how they can be implemented across different levels of the educational system to support the consistent implementation of representative, clinically accurate first-aid education in everyday teaching practice.

5.3.1 *Strengthening representativeness in first-aid course materials*

As indicated in Table 1, teachers play a central role in operationalising representativeness through the design and systematic revision of course materials. Teachers should therefore conduct systematic audits of first-aid course (and related) materials to ensure representativeness and mitigate implicit bias. Given that documented content is more enduring than oral commentary, diversity should be explicitly embedded in written and visual resources rather than confined to verbal caveats. Annual reviews of slides and texts should identify under-representation and replace normative terms with clinically precise and inclusive language. A structured checklist should guide this process across three key dimensions: (a) imagery balanced by sex and skin tone, and (b) textual coverage of sex-specific presentations and presentations on darker skin. Consistent source attribution, including licensing, is essential for quality assurance, enabling peer review and guaranteeing that materials can be systematically audited and improved over time. These practices correspond to the teacher-level actions outlined in Table 1.

At programme level (Table 1), educational programmes should ensure that first-aid course materials are representative of the student population in undergraduate VET programmes in health and welfare. Geographic differences (e.g. regional or local diversity) (Shao & Feng, 2022) should not be used to justify limiting such efforts. In particular, the limited depiction of care providers of colour in materials designed for urban and metropolitan programmes risks reinforcing stereotypical representations in case studies. It also limits the visibility of diverse identities among future healthcare professionals (Al-bedaery et al., 2024). In addition to building a solid knowledge base, programmes should explicitly address how diversity is represented in teaching materials and learning activities, as emphasised in previous research (Benoit et al., 2020; Gonzalez, Lypson, & Sukhera, 2021; White et al., 2018). Given that diversity-sensitive practice is a core responsibility of healthcare professionals, educational programmes should explicitly foster awareness of diversity among future professionals.

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Given the critical role of visual observation in delivering high-quality care, training observation skills during educational programmes is essential for effective first aid (Craig, 2011; Hanson et al., 2010). Accordingly, first-aid course materials should include images that actively support clinical observation, rather than primarily serving as procedural illustrations.

Although case naming was excluded from the main analysis, interviews indicated that some teachers actively attempt to enhance representativeness in this area. From a pedagogical perspective (as noted in earlier studies; Theeuws et al., 2019), it is relevant to consider how representativeness is operationalised in case-based learning, a widely used approach in healthcare education that connects theory and practice using authentic, patient-centred scenarios (McLean, 2016). Prior research shows that minority groups are often under-represented or stereotyped in such cases, especially in short patient vignettes (Al-bedaery et al., 2024). One strategy for promoting inclusivity is the deliberate use of culturally familiar names without reinforcing stereotypes (Agirdag, 2020; Biernat et al., 2025). Teacher education and professional development should explicitly address how names and personas are selected and adapted in case studies. This includes clarifying which criteria guide these choices (e.g. demographic and onomastic data rather than cultural essentialism), and how such practices may convey implicit social markers related to identity, belonging and intended audiences (Agirdag, 2020).

5.3.2 Strengthening teacher professional development

As reflected in Table 1, embedding representativeness in first-aid education requires integrated teacher development across initial training, external-transfer preparation and in-service learning. Teacher-education programmes should incorporate objectives on representativeness into subject-specific didactics and adopt guidelines for representative course materials and source attribution. Reflection on implicit bias and language should be explicitly integrated into lessons, with observation tasks linked to sex-specific symptoms and presentations on darker skin. This should be accompanied by targeted professional development for current healthcare professionals involved (directly or indirectly) in training students (e.g. during internships).

At the level of continuing professional development (Table 1), in-service training remains essential. In addition to enhancing subject knowledge, professional development should raise awareness and enable the transfer of representative practices into teaching materials and classroom routines. It should also emphasise explicit incorporation of diversity into written and visual resources and include practical assignments that adapt existing materials. Sustained implementation and accountability require follow-up mechanisms, like peer review or team-based audits. First-aid course materials must be accurate, comprehensive and current. These requirements also highlight the importance of school and systemlevel policy, as structural supports and

monitoring frameworks are needed to reinforce and sustain individual and teambased efforts (Agirdag, 2020; Schelfhout & Tanghe, 2024).

5.3.3 Policy and infrastructure

At the policy level (Table 1), structural intervention is required. Given that more than 60% of the courses had been co-authored or adopted by colleagues, concerns arise regarding teachers' knowledge of and attentiveness to clinical representation. The finding that one in three courses had not been revised for over three years is problematic, given the frequent updating of first-aid guidelines and scientific insights. Governments and umbrella organisations should define clear curriculum objectives that specify both clinical and general representativeness, providing teachers and publishers with actionable guidelines. These objectives must aim at high-quality care for every patient. Policy should be supported by quality monitoring frameworks and open-access resources, including rights-cleared image banks and representative first-aid materials. Collaborative initiatives (e.g. co-creation labs with specialised organisations and publishers) are essential to ensure clinically accurate, diverse content and regular updates. By prioritising representativeness in official standards and resource provision, policy creates structural conditions for sustainable implementation, while respecting teacher autonomy.

5.3.4 Specialised organisations

As indicated in Table 1, in addition to providing clinically validated, diverse resources, specialised organisations should contribute to training for new and experienced teachers and healthcare professionals. By offering teacher-ready packages and partnering in professional-development initiatives, they could bridge clinical accuracy and educational usability. Regular updates and collaboration with schools and publishers ensure that materials remain current and pedagogically sound.

5.3.5 Publishers

Educational publishers should adopt a representation charter for first-aid (and other) courses, with measurable standards for imagery and text, supported by transparent version control and external review. Co-creation with practitioners ensures contextual relevance, and teacher guides should include representative case variants and clear source attribution. Enhancing accessibility through alt-text, metadata and modular visuals facilitates adaptation. By aligning with policy and collaborating with specialised organisations, teacher-education programmes and teachers, publishers can embed representativeness as a core design principle, including for substantive content.

Table 1 summarises these recommendations across stakeholder levels, highlighting their complementary and interdependent roles.

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Table 1

Structural and integrated approach to developing culture-responsive first-aid course materials, highlighting interdependent responsibilities across stakeholders

Stakeholder	Recommendations
Teachers	• Conduct systematic audits using a structured checklist • Replace normative terms with inclusive language • Ensure source attribution
Teacher education	• Embed representativeness objectives in initial and external-transfer training • Include reflection on implicit bias
Professional development	• Offer in-service training with practical assignments to adapt materials • Implement follow-up mechanisms
Governments and umbrella organisations	• Define clear curriculum objectives specifying clinical and general representativeness • Provide actionable guidelines • Support quality monitoring and open-access image banks
Specialised organisations	• Provide clinically validated, diverse resources • Contribute to teacher and healthcare professional training • Ensure regular updates
Publishers	• Adopt a representation charter with measurable standards • Co-create materials with practitioners • Include teacher guides and accessibility features

Data Availability Statement

The data from this study are available upon request.

Ethics and consent

The study was conducted in accordance with the Declaration of Helsinki and was approved by the ethical committee (SHW_2025_135). During this non-interventional study based on content analysis and surveys, all participants were fully informed in advance that their anonymity would be guaranteed, how the data would be used, and that participation did not involve any risks. All respondents who provided course materials confirmed that they agreed with the approach. The survey was completed anonymously.

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Appendix

Appendix 1

Descriptive data on respondents to the online survey (N=31)

Questions	Choices	% (N=31)
Working in Dutch education in Flanders and/or Brussels-Capital	Yes	100
	No	0
Experience as a teacher:	0-1 years	3
	2-4 years	26
	5-9 years	29
	10-19 years	32
	20+ years	10
Professional experience in the health and welfare sector:	Not applicable	10
	Yes, as a psychologist	3
	Yes, in a caring or nursing profession (including coordinating positions)	87
Professional experience in the health and welfare sector:	0-1 years	7
	2-4 years	7
	5-9 years	18
	10-19 years	46
	20+ years	21
Highest degree attained:	Secondary/Level 4	19
	Graduate/Level 5	13
	Bachelor/Level 6	48
	Master/Level 7	19
Teacher-training programme:	Yes, as primary degree	10
	Yes, as external transfer	84
	In progress	3
	No, and no intent	3
Working in:	Metropolitan context	13
	Urban context	55
	Rural context	32
Living in:	Metropolitan context	6
	Urban context	26
	Rural context	68

Questions	Choices	% (N=31)
Raised in:	Metropolitan context	3
	Urban context	19
	Rural context	78
Development of course materials	Self	36
	Together with a colleague	28
	Adopted from a colleague	36
Most recent update	2023-2025	63
	2020-2022	14
	2019 or earlier	23

Appendix 2

Descriptive data on respondents of the in-depth interviews who do not use self-developed first-aid course materials (N=10)

Questions	Choices	% (N=10)
Working in Dutch-taught education in Flanders and/or Brussels-Capital	Yes	100
	No	0
Experience as a teacher:	0-1 years	0
	2-4 years	10
	5-9 years	10
	10-19 years	40
	20+ years	40
Professional experience in the health and welfare sector:	Not applicable	0
	Yes, as a psychologist	0
	Yes, in a caring or nursing profession (including coordinating positions)	100
Professional experience in the health and welfare sector:	0-1 years	20
	2-4 years	10
	5-9 years	20
	10-19 years	40
	20+ years	10
Highest degree attained:	Secondary/Level 4	10
	Graduate/Level 5	10
	Bachelor/Level 6	50
	Master/Level 7	30
Teacher-training programme:	Yes, as primary degree	0
	Yes, as external transfer	100
	In progress	0
	No, and no intent	0
Working in:	Metropolitan context	20
	Urban context	30
	Rural context	50
Living in:	Metropolitan context	0
	Urban context	20
	Rural context	80
Raised in:	Metropolitan context	0
	Urban context	70
	Rural context	30

Appendix 3

Analysis of images of patients in course materials developed by teachers (N=40)

Course #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Number of pages	17	87	107	4	5	101	110	35	85*	101	87*-**	197*	18	71	20	88	28	51	50	114
Photographs	3	6	7	0	0	15	21	3	4	16	20	43	2	9	0	20	4	7	2	64
Drawings	3	18	10	0	0	0	0	0	0	5	2	0	2	2	0	5	2	12	0	2
Proportion (%)	35	28	16	0	0	15	19	9	5	21	25	22	22	15	0	28	21	18	4	56
Sex																				
Male (including boys)	5	12	2	0	0	4	14	1	1	2	11	39	2	3	0	21	4	13	1	45
Female (including girls)	1	12	5	0	0	3	6	0	2	13	10	3	0	8	0	5	2	6	1	19
Indeterminate	0	4	9	0	0	8	1	2	0	6	1	1	2	0	0	0	0	0	0	2
Proportion male to female (%)	83	50	29	0	0	57	70	100	33	13	52	93	100	27	0	80	67	68	50	70
Skin tone																				
Person with white skin tone	5	19	17	0	0	15	20	3	4	21	20	43	4	11	0	25	6	19	2	64
Person of colour	1	3	0	0	0	0	1	0	0	0	2	0	0	0	0	0	1	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Proportion white to darker skin tones (%)	83	90	100	0	0	100	95	100	100	100	91	100	100	100	0	100	86	100	100	100
Symptoms in darker skin tones	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Course #	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Number of pages	75	56*	43	70	74	104	27	140	28	85	171*	151	137	42	82*	77	83	78	94	55
Photographs	6	0	2	10	19	28	4	41	8	49	29	21	9	0	20	1	39	9	8	0
Drawings	9	0	1	1	2	1	1	20	2	7	5	11	16	2	3	3	9	0	9	0
Proportion (%)	20	0	7	16	28	28	19	44	36	66	20	22	18	5	28	5	58	12	18	0
Sex																				
Male (including boys)	11	0	0	7	14	19	3	38	5	40	28	19	16	0	13	3	17	8	8	0
Female (including girls)	3	0	3	4	4	8	1	17	4	15	5	13	5	0	8	0	25	1	7	0
Indeterminate	1	0	0	0	3	2	1	6	1	1	1	0	4	1	2	1	6	0	2	0
Proportion male to female (%)	79	0	0	63	78	70	75	69	56	73	85	59	76	0	62	100	40	89	53	0
Skin tone																				
Person with white skin tone	15	0	3	11	16	24	5	56	10	53	34	29	14	0	32	3	47	8	17	0
Person of colour	0	0	0	0	5	5	0	5	0	3	0	0	0	0	0	0	1	1	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	1	0	0	0	0
	100	0	100	100	76	83	100	92	100	95	100	100	100	0	100	100	98	89	100	0
Symptoms in darker skin tones	0	0	0	0	0	0	0	0	0	0	0	3***	0	0	0	0	0	0	0	0

*slides as course
**roadmap as course
*** cyanosis; erythema migrans in Lyme disease

Appendix 4

Analysis texts in of course materials developed by teachers (N=40)

Course #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Number of pages	17	87	107	4	5	101	110	35	85*	101	87*-**	197*	18	71	20	88	28	51	50	114
Specific symptoms of heart condition in women (shortness of breath; pain or discomfort in neck, jaw, upper back or shoulders; nausea or vomiting; unusual or pronounced fatigue; dizziness or lightheadedness; general feeling of malaise or discomfort rather than acute chest pain)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	x
Specific symptoms involving change in skin colour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	x
Cyanosis (a bluish discolouration of the skin, nails or lips caused by low oxygen levels in the blood)																				
Haematoma (a collection of blood under the skin caused by broken blood vessels, usually due to injury)																				

Course #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Pallor (an unusually pale appearance of the skin, often caused by reduced blood flow or anaemia)																				x
Redness (increased redness of the skin due to inflammation, infection or increased blood flow)																				
Petechiae (small red or purple spots on the skin caused by minor bleeding from broken capillaries)																				
Jaundice (yellow discolouration of the skin and eyes caused by high levels of bilirubin often related to liver disease)																				
Blisters (small fluid-filled bubbles on the skin caused by friction, burns or infections)																				

Course #	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Number of pages	75	56*	43	70	74	104	27	140	28	85	171*	151	137	42	82*	77	83	78	94	55
Specific symptoms of heart condition in women	0	0	0	0	0	0	0	0	0	0	x	x	0	0	x	0	x	0	x	0
Specific symptoms involving change in skin colour	0	0	0	0	0	0	0	0	0	0	x	x	0	0	0	0	0	0	0	0
Cyanosis												x								
Haematoma																				
Pallor											x	x								
Redness																				
Petechiae																				
Jaundice																				
Blisters												x								

*slides as course
 **roadmap as course

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Samenvatting

Representativiteit van eerstehulpcurriculummateriaal voor secundair beroepsonderwijs: een mixed-methods contentanalyse

Representatief curriculummateriaal vormt een belangrijk onderdeel voor kwaliteitsvolle eerstehulpverlening, maar onderzoek in het beroepssecundair onderwijs ontbreekt. Deze studie analyseert door leerkrachten ontwikkeld eerstehulpcurriculummateriaal in Vlaamse opleidingen voor secundair beroepsonderwijs (Vocational Education and Training, VET) binnen het domein gezondheid en welzijn. Representativiteit wordt gedefinieerd als de mate waarin cursusinhoud (1) demografische diversiteit weerspiegelt en (2) variaties in klinische symptomen naar geslacht en huidkleur expliciet en accuraat weergeeft. Met een gestructureerde contentanalyse van 40 cursussen met een getest coderingsschema en tweede-orde-synthese, gevolgd door triangulatie met 20 diepte-interviews onderzochten we twee dimensies: visuele en tekstuele klinische representatie. De resultaten tonen consistente patronen: mannen en personen met lichte huid zijn oververtegenwoordigd, variaties in symptomen op donkere huid en bij vrouwen met myocardinfarct komen nauwelijks aan bod. Diepte-interviews tonen een intentie-implementatiekloof: leerkrachten erkennen het belang van representativiteit maar integreren dit beperkt in curriculummateriaal door een gebrek aan kennis en bewustzijn, richtlijnen en geschikte bronnen. Deze structurele lacune vergroot het risico op diagnostische onnauwkeurigheid en impliciete bias bij eerstehulpverlening. Het artikel pleit voor bewustmaking, duidelijke curriculumrichtlijnen, toegankelijke beeldbanken en gerichte professionele ontwikkeling, via een structurele geïntegreerde samenwerking tussen betrokken stakeholders.

Kernwoorden representativiteit, gezondheidszorgopleidingen, lesmateriaal, impliciete bias, beroepsonderwijs

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Representativeness in first-aid course materials for vocational secondary education: A mixed-methods content analysis

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