Chapter 1
Interprofessional Learning Outcomes-Based Curriculum to Support Behaviour Change in Persons Self-Managing Chronic Disease

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Chronic diseases, also known as non-communicable diseases, are a global epidemic, responsible for the majority of deaths worldwide. In the European region, chronic diseases account for 89.6% of deaths (World Health Organization, 2017). Cardiovascular diseases, cancers, diabetes and chronic lung diseases present the highest prevalence, which is projected to increase in the coming years (World Health Organization, 2017).

In addition to morbidity and mortality, chronic disease leads to marked costs for governments and individuals, as well as losses for economies. The economic burden of chronic disease includes direct costs, both medical (e.g. medication, hospital stays, ambulatory consultations) and non-medical (e.g. transportation for healthcare services), plus indirect costs (e.g. productivity loss of the person and/or caregiver,

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workforce attrition, early retirement). For example, health expenditure for adults with diabetes aged 20–79 years old, irrespective of being borne by individuals, their families or the health system, grew globally from USD 232 billion in 2007 to USD 966 billion in 2021. This represents a 316% increase over 15 years (International Diabetes Federation, 2021).

Addressing the burden of chronic diseases has been a priority for the European Commission. The most recent example is the Healthier Together – European Union Non-Communicable Diseases initiative (2022), which reinforces the support for action of the Member States and relevant stakeholders in this area in five strands: cardiovascular diseases, diabetes, chronic respiratory diseases, mental health, neurological disorders and health determinants.

Self-management is defined as tasks performed by an individual to minimise the impact of one's disease, with or without the support of health professionals (Lorig & Holman, 2003). Tasks can holistically be categorised under medical management (e.g. taking medication, adhering to a diet, engaging in physical activity), role management (e.g. redefining life roles in light of chronic disease) and emotional management (e.g. dealing with anger and frustration) and are related to a set of skills (Lorig & Holman, 2003). Self-management is a key component of managing chronic diseases. Taking diabetes as an example, it has been estimated that persons with this condition spend fewer than 6 hours per year consulting with healthcare professionals (Holt & Speight, 2017). It is therefore critical to empower persons to deal with chronic diseases on a daily basis.

Health and other professionals are expected to support self-management and, in particular, behaviour change. Evidence highlights that competent behaviour change counselling is still regarded as uncommon in clinical practice, suggesting a global healthcare problem. Meta-research, including 36 systematic reviews, showed that healthcare professionals frequently miss opportunities to provide brief behaviour change advice, even when it is perceived as needed (Keyworth et al., 2020). Training on behaviour change interventions to support self-management is not always part of professional training (Keyworth et al., 2019).

A scoping review found that behaviour change techniques (BCTs) remain underused in self-management interventions (Riegel et al., 2021). One reason might be the poor permeation of behavioural science, and BCTs in particular, into the education and training of health and other professionals. Difficulties in providing effective support of self-management behaviours in chronic disease are also compounded by the lack of a common set of knowledge and skills in health and other professionals.

The Train4Health project (https://www.train4health.eu) is a strategic partnership involving seven European institutions across five countries, which seeks to improve behaviour change support competencies to support self-management in chronic disease. The project target groups are nursing, pharmacy and sport sciences students, due to their pivotal role in supporting self-management of persons living with chronic diseases. Nonetheless, behaviour change support education is of interest to a wider range of professions, including dentists, nutritionists, psychologists, physicians and physiotherapists.

Train4Health envisages a continuum in behaviour change support education, in which an interprofessional competency framework, relevant for those currently practising, guided the development of a learning outcomes-based curriculum and an educational package for future professionals (today's undergraduate students). The next section addresses the development of the competency framework.

1.1 The Interprofessional Train4Health Competency Framework

The development of a European competency framework for health and other professionals to support behaviour change in persons self-managing chronic disease has been detailed elsewhere (Guerreiro et al., 2021).

In essence, the framework comprises 26 competency statements, classified into 2 categories, depicted in Fig. 1.1. Competencies that directly support behaviour change in the self-management of chronic disease (BC1–BC14) are presented in Fig. 1.2; foundational competencies required for effective delivery of behaviour change support (F1–F12) are described in the competency framework paper (Guerreiro et al., 2021).

Competency statements were consensualised through an e-Delphi panel, composed of 48 participants from 12 European countries and a variety of disciplines: pharmacy, nursing, sport sciences, physiotherapy, general practice, nutrition, psychology and public health (Guerreiro et al., 2021).
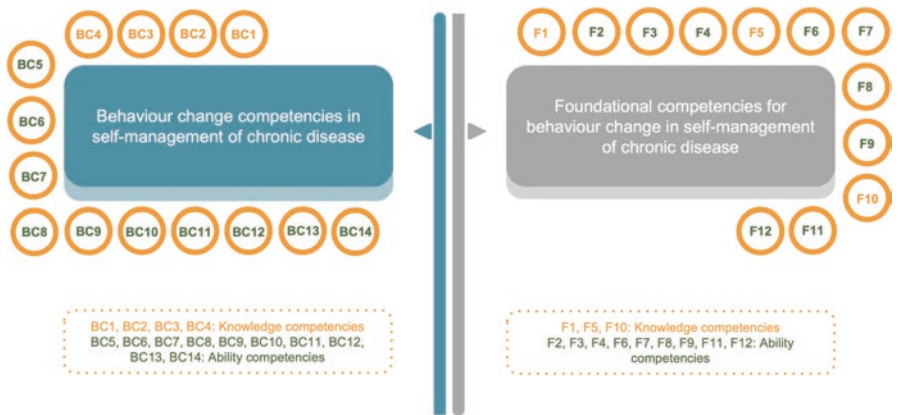
Fig. 1.1 European competency framework for health and other professionals to support behaviour change in persons self-managing chronic disease
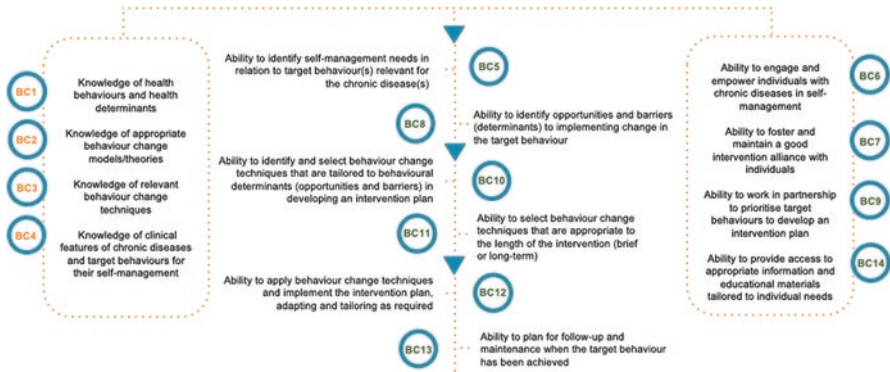
Fig. 1.2 Behaviour change competencies

The central part of Fig. 1.2 depicts the traditional assessment–planning–intervention–monitoring cycle, familiar to health and other professionals, from a behaviour change support perspective. BC1, BC2, BC3 and BC4, depicted on the left side of Fig. 1.2, indicate knowledge required to deliver behaviour change support in chronic disease. On the right side, BC6, BC7, BC9 and BC14 are communication and relationship abilities, essential across the assessment–planning–intervention–monitoring cycle.

General communication competencies and professionalism are encompassed in the foundational category (e.g. F6, ability to communicate effectively in partnership with people and families, and F11, ability to demonstrate professional behaviour, respectively).

The Train4Health competency framework is associated with a core set of 21 BCTs from an established taxonomy (Michie et al., 2013), derived from a literature search in conjunction with experts' feedback (Guerreiro et al., 2021). This set of BCTs can be employed in five behaviours (diet, including alcohol intake, physical activity, medication adherence, smoking cessation, symptom monitoring and management), in conditions recognised as high priority for self-management: type 2 diabetes, chronic obstructive pulmonary disease (COPD), obesity, heart failure, asthma, hypertension and ischaemic heart disease. Additional BCTs were organised in supplementary sets per target behaviour; both the core and supplementary lists of BCTs are presented as supplementary online material 1. These lists of standardised techniques to change behaviour are linked to competencies BC3, BC10, BC11 and BC12 (Fig. 1.2).

1.2 From Behaviour Change Competencies to a Learning Outcomes-Based Curriculum

The Train4Health European competency framework was the starting point for developing the learning outcomes-based curriculum, which has been detailed elsewhere (Cadogan et al., 2021). Two principles guided curriculum development, the interprofessional nature of behaviour change support and the importance of interprofessional education, in which different professionals are brought together to learn with, from and about one another (Reeves et al., 2016).

Typically, in education, the term "curriculum" refers to a set of components in a course: learning outcomes, teaching strategies, student activities and assessments, which should be aligned (Kennedy, 2006; Cedefop, 2017). The designation "learning outcomes-based curriculum" stresses the pivotal role of learning outcomes in determining content to be included in the Train4Health educational products.

Firstly, information on behaviour change curricula was collated at the partner institutions as part of needs assessment. This was analysed and supplemented with a literature search to develop a master list of learning outcomes (Loura et al., 2021). This exercise served to further highlight the learning outcomes that were generally covered in curricula and gaps according to the competency framework.

A draft list of learning outcomes was then compiled for each competency statement. The learning outcomes were written in accordance with best practice (Kennedy, 2006; Cedefop, 2017) using the style "The learner is (or will be) able to", followed by an action verb, so that students are able to demonstrate what they have learned. Different verbs were used to demonstrate different levels of learning in accordance with Bloom's taxonomy of learning (Bloom et al., 1964; Kennedy, 2006).

Content was determined by working backwards from the learning outcomes associated with behaviour change competencies. Those related to foundational competencies were deemed as more comprehensively addressed by existing curricula and therefore not developed as content. Each learning outcome was numbered in relation to a competency statement. Learning outcomes and associated content were iteratively refined, as depicted in Fig. 1.3.
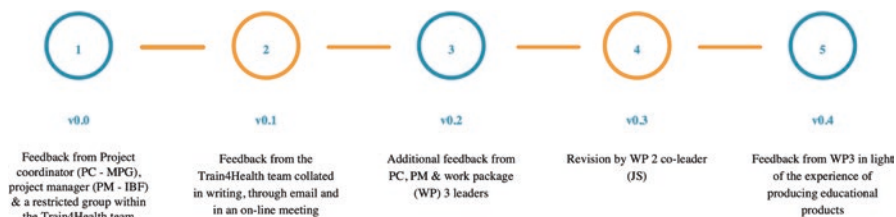

Fig. 1.3 Iterative improvement of the Train4Health learning outcomes and curriculum content

A total of 23 pre-essential learning outcomes were developed, associated with foundational competencies, and 34 learning outcomes associated with behaviour change competencies: 12 related to knowledge and 22 to ability. Within the latter, selected learning outcomes are presented in Chaps. 2, 3, 4 and 5, alongside with their respective content. Supplementary online material 2 presents the current version of the learning outcomes associated with behaviour change competencies, including Bloom's taxonomy level, illustrating different levels of complexity (cognitive and affective), and the proposed curriculum content.

The domains of competency and the learning outcomes developed provide an overview of the knowledge, skills and attitudes needed by healthcare graduates (Pontefract & Wilson, 2019) to effectively support behaviour change for the self-management of chronic disease.

1.3   Practical Considerations About the Learning Outcomes-Based Curriculum

We believe that the work presented here is the first attempt to develop a transnational competency framework and related curriculum on behaviour change support in chronic disease for health and other professionals. This work is expected to promote consistency of required competencies and learning outcomes across countries and higher education institutions throughout Europe. Furthermore, it may raise awareness about the potential need for curricular transformation and pave the way for benchmarking and the identification of best practices.

Using standardised BCTs in behaviour change support education is expected to facilitate tailored interventions while fostering comprehensiveness and consistency. Another envisaged benefit is enabling a clearer description of behaviour change support in practice. Specifically, training future professionals in using BCTs responds to the quest of facilitating design, reporting and comparability of self-management interventions, put forward by researchers that developed and validated a taxonomy of self-management interventions for chronic conditions (Orrego et al., 2021). In fact, the approach presented in this book extends the scope of Orrego et al.'s taxonomy, by further specifying the "1.1 Support technique" subdomain, through the explicit use of standardised BCTs. Also worth noting is the fit between target behaviours presented in Chap. 3 (e.g. diet, physical activity, smoking cessation, medication adherence, symptom monitoring and management) with subdomains of this taxonomy (respectively, "2.1 Lifestyle-related"; "2.2 Clinical management") (Orrego et al., 2021).

In education, it is important to be aware of the relation between the level of taxonomy of the learning outcomes and teaching methods (Kennedy, 2006). The lower level of cognitive learning outcomes, for example, is suitable for the Massive Open Online Course (MOOC), which is one of the Train4Health educational products. For higher-level cognitive learning outcomes, more interactive teaching methods are needed to enhance analysis, synthesis and evaluation. The Train4Health case studies, detailed in Chap. 6, are suitable for this purpose.

In a curriculum, there should be clear alignment between learning outcomes, teaching strategies, student activities and assessment tasks (Kennedy, 2006; Cedefop, 2017; Alfauzan & Tarchouna, 2017). Therefore, a critical step is the definition of links between learning outcomes, teaching strategies, student activities and assessment tasks (Kennedy, 2006). Case studies toolkits and the simulation software, presented in Chap. 6, contain assessment tasks linked with learning outcomes.

Another challenge is understanding which learning outcomes are best achieved by interprofessional learning. It is valuable to understand the nature and extent of learning outcomes that are common to all the professions (Steven et al., 2017) and where there are differences between the professions.

Behaviour change support education lends itself to interprofessional education, as competencies needed to support behaviour change in persons with chronic diseases are common across health and other professions. Interprofessional education is, however, still in a nascent stage, despite its advantages (Dyess et al., 2019; Reeves et al., 2016; Wang et al., 2019). These include improving learners' knowledge, skills and understanding of interprofessional practice (Cox et al., 2016), improving attitudes towards teamwork and collaborative practises and developing skills for interprofessional communication (Dyess et al., 2019; Wang et al., 2019).

Accomplishing interprofessional education is more challenging than using different professionals to develop resources, having different students from different professions using the same resource or showcasing the roles of the different professionals. The design of this learning outcomes-based curriculum encourages educators and students to develop teaching and learning flexibly, which is an important step towards an interprofessional approach.

The Train4Health competency framework and the corresponding curriculum may be adapted for brief, less complex interventions than behaviour change in chronic disease. These include encouraging a healthy lifestyle in general (increasing physical activity, adopting a healthy diet), promoting an active ageing and supporting medication adherence. Another transferability potential is stimulating the alignment with communication skills required to effectively apply behaviour change techniques. The novelty of the Train4Health project is supporting the training of undergraduate students, facilitating future performance and reducing workforce challenges (Vallis et al., 2017).

Key Points
- Health and other professionals are expected to support self-management of chronic disease, but education on behaviour change support is often suboptimal.
- The Train4Health framework comprises 26 competency statements, classified into 2 categories: competencies that directly support behaviour change in the self-management of chronic disease (BC1–BC14) and foundational competencies required for effective delivery behaviour change (F1–F12).
- The Train4Health competency framework is associated with a core set of 21 BCTs from an established taxonomy.
- A total of 23 pre-essential learning outcomes were developed, associated with foundational competencies, and 34 learning outcomes associated with behaviour change competencies: 12 related to knowledge and 22 to ability.

- In a curriculum, there should be clear alignment between learning outcomes, teaching strategies, student activities and assessment tasks.
- Behaviour change support education lends itself to interprofessional education, as competencies needed to support behaviour change in persons with chronic diseases are common across health and other professions.

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