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# 'Are we there yet?' - Operationalizing the concept of Integrated Public Health Policies

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# ‘Are we there yet?’ – Operationalizing the concept of Integrated Public Health Policies

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ABSTRACT

*Objectives:* Although ‘integrated’ public health policies are assumed to be the ideal way to optimize public health, it remains hard to determine how far removed we are from this ideal, since clear operational criteria and defining characteristics are lacking.
*Methods:* A literature review identified gaps in previous operationalizations of integrated public health policies. We searched for an approach that could fill these gaps.
*Results:* We propose the following defining characteristics of an integrated policy: (1) the combination of policies includes an appropriate mix of interventions that optimizes the functioning of the behavioral system, thus ensuring that motivation, capability and opportunity interact in such a way that they promote the preferred (health-promoting) behavior of the target population, and (2) the policies are implemented by the relevant policy sectors from different policy domains.
*Conclusion:* Our criteria should offer added value since they describe pathways in the process towards formulating integrated policy. The aim of introducing our operationalization is to assist policy makers and researchers in identifying truly integrated cases. The Behavior Change Wheel proved to be a useful framework to develop operational criteria to assess the current state of integrated public health policies in practice.
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## 1. Background

Integrated public health policies are often advocated, since they are assumed to pave the way to a healthier society [1–4]. However, it is difficult to evaluate the extent to which health policies are integrated, since a clear operational definition of integrated public health policies is lacking [5].

Many researchers have described integrated public health policies in abstract terms [1–6], such as ‘health in all policies’ [6], ‘multi-sectoral policy’ [7] and ‘healthy public policy’ [1,3,6,8]. Various approaches also (sometimes implicitly) recommend the use of integrated public health policies, such as ‘whole-of-government’ and

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'whole-of-society' approaches, 'governance for health' or 'nudge policies' [1]. Although these designations may be useful in some contexts, they lack concrete criteria for a practical evaluation of the extent to which a policy is 'integrated'.

The reason why such 'vague' designations have been formulated may be related to the unpredictable wicked (*i.e.*, complex) nature of policy development [5,9–13]. By 'wicked' we mean that the policy process is often non-linear and complex due to competing values of those who develop, implement or are affected by the policy [9]. The fact that the reality of policy development manifests itself differently each time encourages the use of higher order categories (*i.e.*, abstractions) to define integrated public health policies, as they embrace, rather than exclude, different types of such policies [14].

Although it is unlikely that a single operationalization of integrated public health policies will be sufficient to fully capture the complex reality of developing such integrated public policies, more precise operationalization is needed for the conduct of research, as well as for the daily practice of developing integrated public health policies, *e.g.*, performing a document analysis to formulate recommendations for policy development or guiding policy development within local governments. Without this operationalization, scientists and policy makers lack an important prerequisite for change, which is 'having a clear goal' [15]. In this paper, we propose operational criteria for evaluating the range and magnitude of integrated public health policy.

## 2. Methods

Our method was based on four steps: (1) conducting a literature review of publications that propose an operationalization of integrated public health policies and related notions (*e.g.*, health in all policies) using the following search terms: health in all policies, intersectoral action, intersectoral action for health, health governance, health policy, public policy, as well as finding common elements in these publications; (2) identifying gaps in the operationalizations, especially regarding their ability to distinguish the concept of integrated public health policies from other related notions, such as 'health policy', 'intersectoral policy' or 'intersectoral action', and, based on these shortcomings, establishing goals for new criteria; (3) searching for conceptual approaches to fill the gaps using a narrative review; (4) proposing operational criteria that may be used for theoretical (*e.g.*, document analysis) and practical purposes (*e.g.*, to define the shortcomings of current policies). By introducing this operationalization, we hope to enable researchers and policy makers to answer the question that has been asked since the pursuit of integration has become a widely recognized ideal [16]: 'Are we there yet?'

## 3. Results

### 3.1. Literature review of previous operationalizations

Table 1 provides an overview of the previous publications in the field of integrated public health policies [1,4,6–8,17–25]. What these publications have in common is that they emphasize: (a) establishing broader goals, not necessarily health, (b) the need for intersectoral action, (c) a focus on *social* determinants, such as equity, (d) the search for 'synergies', based on the assumption that more is achieved together compared to working alone; (e) the need to appoint stewards from the health sector, who should proactively advocate changes in non-health sectors, familiarize themselves with the work of non-health sectors (in terms of language and desired outcomes) and think outside the 'health box' to examine the more general policy context in view of potential implications for health determinants, (f) that health may act as a *vehicle* to influence other governmental agendas, *i.e.*, that health should not necessarily remain at the core (except in [19]), (g) stages of policy development, and (h) that integrated health policies should be grounded in health-related rights and obligations.

### 3.2. Gaps in previous designations and establishing goals for new criteria

What seems to be missing in previous publications is a clear causal pathway between the assessment of health determinants and 'integrated' interventions or 'integrated' public health policy, making it difficult to determine *when* and *why* a case is 'integrated' or not. Since operational criteria should have the ability to distinguish 'integratedness' from other related notions (*e.g.*, health policy), and to judge cases (*e.g.*, policy documents), or guide policy developments towards more integration, we felt that the development of operational criteria required at least four goals to be met. Criteria should have the ability to: (1) 'judge' if a policy is integrated, (2) 'guide' towards more integration, (3) provide a comprehensive view of several possibilities to achieve integration, and (4) incorporate the distinguishing feature of 'integration'. We also wanted to strengthen the theoretical basis of the operationalization. Therefore, we looked for a framework that could describe sets of policies (*i.e.*, policy categories) and their links with specific interventions to achieve the goal of integration.

### 3.3. Conceptual approaches to evaluate public health policy integration

Based on the goals we established for operational criteria, we looked for conceptual approaches that could meet all of the above purposes. The Behavior Change Wheel (BCW) [26,27] was identified as an appropriate framework. The BCW is a synthesis of 19 behavior change frameworks developed in health, environment, culture change and social marketing, identified in a systematic literature review (Fig. 1; [26]) and it has been applied in operationalizing integration regarding policy development and implementation [28–30].

At the centre of the BCW is the COM-B model, a theory-based model to understand behavior (Fig. 2). The model comprises three components: Capability, which can be physical or psychological; Opportunity, which can be physical or social; and Motivation, which can be reflective (involving self-conscious planning, analysis and decision-making) or automatic (involving emotional

**Table 1**
Definitions and goals of integrated public health policies or related notions with a similar content, as proposed in the literature.

| Authors | Defining characteristics or operational criteria as described in the literature |
|---|---|
| Kickbusch et al. [1] | - A Health in All Policies approach reflects health as a shared goal of government.<br>- It is an innovative strategy that reflects the critical role that health plays in the economic and social life of 21st century societies.<br>- It introduces health improvement, improved public health outcomes, and closing the health gap as shared goals across all parts of government.<br>- It aims to address complex health challenges through an integrated policy response across portfolio boundaries.<br>- By incorporating a concern with health impacts into the policy development process of all sectors and agencies, it allows governments to address the key determinants of health in a more systematic manner.<br>- It also takes into account the benefit of improved population health for the goals of other sectors. |
| Aarts et al. [7,17] | - Multi-sector policy is working across sectors towards a coherent policy plan for stimulating physical activity among children.<br>- This is necessary because effectively addressing physical as well as social environmental determinants of physical activity in children is for a large part dependent on policy measures outside the public health domain. |
| Steenbakkers [8] | - Health in All Policies aim at finding solutions outside the health domain and are developed through intersectoral collaboration. |
| Travis et al. [18] | - Using a 'steward' who brings actors from different sectors domain together to:<br>- improve the determinants of public health;<br>- improve intersectoral collaboration. |
| Ollila [19] | - In the health strategy, health objectives remain at the core of the exercise.<br>- The aim is to get the 'other sectors' to adopt policies and measures to achieve public health goals<br>- An analysis should be made of:<br>- the health situation and its determinants;<br>- the policy environment, to identify opportunities for improving health by amending the determinants through changes in policies and, based on that, being proactive in advocating such changes (steward).<br>- Four main strategies to improve the implementation of this approach are discussed. |
| Leppo et al. [20] | - Health in All Policies (HiAP) is an approach to public policies:<br>- that works across sectors;<br>- that systematically takes into account the health and health systems implications of decisions;<br>- that seeks synergies;<br>- that avoids harmful health impacts, in order to improve population health and health equity;<br>- that is founded on health-related rights and obligations;<br>- that emphasizes the consequences of public policies on health determinants, and aims to improve the accountability of policy makers for health impacts at all levels of policy-making |
| Kranzler [21] | - Operationalization of integrated public health policies based on the following criteria:<br>- including, integrating or internalizing health in other policies (*i.e.*, policy practice);<br>- focusing on policies that shape or influence the social determinants of health;<br>- familiarizing the health sector with policy goals and processes of other sectors in order to steer policy making into health-promoting directions and<br>foster a governmental agenda that is congruent with and complementary to health goals;<br>- rather than competing for health to be placed at the centre of an increasingly complex, expensive and saturated policy-making agenda.<br>- HiAP advocates leveraging health in the service of other agendas. |
| Kickbusch and Buckett [22] | - Horizontal, complementary policy-related strategy with a high potential to contribute to population health.<br>- The core is to examine determinants of health which can be influenced to improve health but are mainly controlled by policies of sectors other than health.<br>- The goal of the policies we make does not necessarily have to be public health, but can shift from intersectoral action for health to intersectoral action for shared societal goals.<br>- Equity, with health as one important indicator, is an entry point that may hold promise in many political contexts. |
| Storm et al. [4,6] | - Integrated health policies (IHPs) are policies in which the main relevant sectors within and outside of the public health domain collaborate to address aspects<br>of health.<br>- The common goal is to promote or protect health.<br>- Intersectoral collaboration means collaboration between various policy sectors at the same administrative level and is an important precondition for implementing integrated health policies.<br>- Health inequalities can be reduced using IHP, since such inequalities are closely associated with delays in many other areas.<br>- Correcting this disadvantage requires not only the commitment of the public health sector, but also input from other sectors, such as education, planning and sports.<br>- A positive impact on these health inequality issues is needed from sectors within as well as outside the health domain.<br>- This policy aims at influencing health through its associated determinants. |
| McQueen et al. [23] | - The three major concepts of 'social determinants of health', 'health in all policies' and 'governance' are interrelated.<br>- Governance is seen as acting on social determinants and achieving HiAP.<br>- HiAP is a policy practice adopted by leaders and policy makers to integrate consideration of health, well-being and equity during the development, implementation and evaluation of policies.<br>- Intersectoral governance structures are linked with intersectoral governance action to support HiAP. |

Table 1 (*Continued* )

| Authors | Defining characteristics or operational criteria as described in the literature |
|---|---|
| Storm et al. [24] | - A whole-of-government approach with a focus on health.<br>- The alleviation of wicked public health problems, like inequalities in health, requires integrated contributions from health and non-health sectors.<br>- Only joint efforts of multiple sectors and actors could effectively influence the determinants of health inequalities.<br>- Maturity model definition classifies HiAP growth processes:<br>- recognition of the importance of HiAP (Stage I);<br>- HiAP described in policy documents and collaboration with sectors present (StageII);<br>- concrete collaboration agreements and systematic forms of consultation (Stage III);<br>- broad, shared vision on HiAP (Stage IV). |
| Bekker [25] | - Public health policy covers a broad spectrum of health promotion, protection and disease prevention.<br>- The idea of 'healthy public policy': underlying public health policy is a general idea that public health should not be strictly assigned to one authority or sector, but integrated in all the activities of government.<br>- Public health has many determinants that are addressed or affected by many non-health policies. All health problems, even the genetic ones, are related to the environment, with respect to the severity of symptoms and the conditions for recovery or 'learning to live with' a chronic condition.<br>- Given that these determinants are influenced and controlled by a wide range of policies, Health Determinants theory contends that such multi-causality requires a policy response that exceeds the sectoral organization of government and the public–private divide.<br>- Many of the current health problems could be addressed more effectively and more efficiently by seeking cooperation with non-health policy sectors, which would have to result in 'healthy public policy'. |

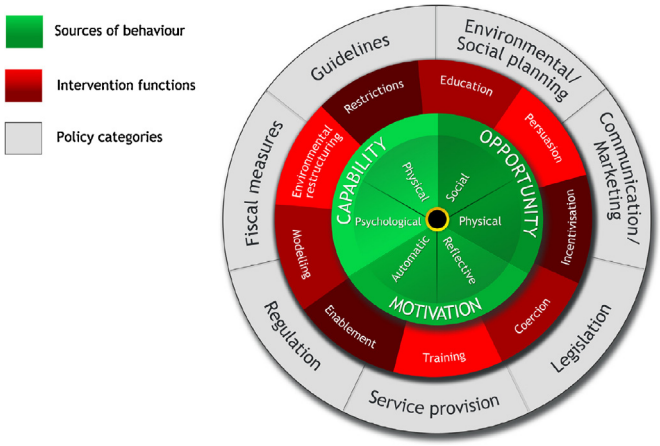


**Fig. 1.** The Behavior Change Wheel.

reactions, drives, impulses and habits) that are necessary for a given behavior to occur, which provides a simple approach to understanding behavior in context.

Making a particular behavior happen requires sufficient motivation, capability and opportunity (Fig. 1). The absence of one of these determinants makes it difficult for the system to function. For example, when children are not physically active (behavior), this might be caused by a lack of opportunity (*e.g.*, no playgrounds near their house), and not by a lack of motivation (*e.g.*, enjoying playing outside) or capability (*e.g.*, the skills required to play football). In this example, the behavioral system fails to work due to insufficient presence of opportunity. In the long term, such a dysfunctional system may lead to unhealthy behaviors (*e.g.*, lack of physical activity) and subsequently to public health problems, such as childhood obesity. To improve public health, policy makers and others whose aim it is to improve public health should therefore focus on the aspects of the behavioral system that, if changed, would bring about the maximum shift in the desired direction. In our example, this would mean that policy makers should at least *consider* creating playgrounds in a neighborhood (interventions) and develop policies that enable these interventions (*e.g.*, adjusting zoning policies that regulate the size, type, structure and use of land or buildings in designated areas). In addition, issues of feasibility, acceptability, affordability and political expediency

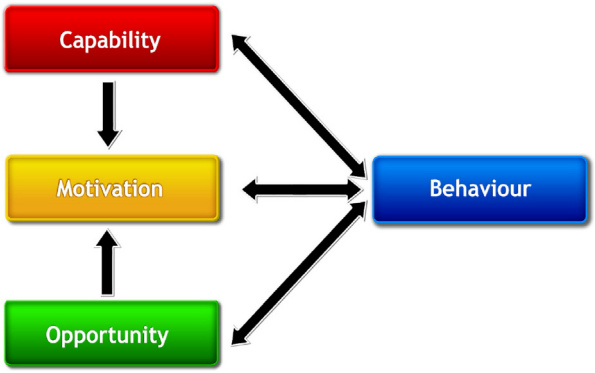


**Fig. 2.** The COM-B model.

also have to be considered when choosing interventions and policies.

Nine intervention functions and seven policy categories form the middle and outer rings of the wheel. Linkages between the COM-B model, intervention functions and policy categories allow a systematic, comprehensive approach to intervention design and delivery (Tables 2 and 3).

The BCW has been used to reliably characterize interventions included in the British Department of Health's 2010 tobacco control strategy and the UK's National Institute for Health and Care Excellence (NICE) guidance on reducing obesity [26]. The intervention functions of the BCW have been used to classify interventions identified in a Cochrane systematic review of adherence to dietary advice for preventing and managing chronic diseases in adults [31] and are currently being used to classify components of cost-effective interventions informing NICE Guidance across several behavioral domains: smoking, diet, exercise, alcohol, sexual health and multiple health behaviors [32].

The BCW has also been used to design and develop complex, multi-level interventions including one to improve the delivery of paediatric services in Kenya [33]. It is currently being used to design interventions at the service and individual levels to manage cardiovascular disease risk in people with mental illness and to reduce variation in adenoma detection rates in routine colonoscopy exams.

### 3.4. The operationalization

Based on the assumptions of the BCW, we propose an operationalization of integrated public health policies with a view to facilitating policy makers and those who support them in monitoring and developing policies.

Since the rationale behind the implementation of an integrated approach is that policies enable interventions that make the behavioral system function (*i.e.*, ensure sufficient presence of, and synergy between, motivation, capability and opportunity) [10,34], we argue that policies need to be developed to enable these interventions [35]. In other words, making policies 'integrated' requires that they enable interventions which can restore or promote unity in the behavioral system, in order to optimize its functioning and thus lead to certain health-promoting behaviors.

Based on this rationale, we argue that two criteria can be used to assess the extent to which public health policies are integrated: (1) whether the combination of policies (*e.g.*, as described in policy documents) includes an appropriate mix of interventions that optimizes the behavioral system's functioning, thus ensuring that motivation, capability and opportunity interact in such a way that they promote the preferred (health-promoting) behavior of the target population, and (2) whether the policies (or combination of policies) are developed and implemented by the relevant policy sectors from different policy domains (*i.e.*, intersectoral collaboration), in other words, by the policy sectors which are relevant for the development of the policy.

With regard to (1), this means acknowledging that the way in which behavioral influences interact should be at the core of policy development for complex public health problems, such as childhood obesity [35]. With regard to (2), examples of 'different' policy domains include spatial planning (built environment) and youth services (social environment) or financial departments and public health.

## 4. Discussion

In this article, we have proposed an operationalization of 'integrated public health policies' based on two criteria that can be used to assess the extent to which public health policies are integrated. The first criterion is that the combination of policies (*e.g.*, as described in policy documents) includes an array of appropriate interventions that optimize the behavioral system's functioning, thus ensuring that motivation, capability and opportunity interact in such a way as to promote the preferred (health-promoting) behavior of the target population. The second criterion is that the policies (or combinations of policies) are developed and implemented by the relevant policy sectors.

### 4.1. Common elements in previous publications

In previous publications, integrated public health policies were designated by referring to a *synergistic set of policies* (the policy content), specifically the added value of integration [24,25], and the involvement of policy actors within and outside the health sectors (*i.e.*, intersectoral collaboration) [1–8,18–25]. The main ambiguity in these publications seems to be whether the focus should be on a health goal *per se*, or if a focus on broader societal goals (primarily 'equity') might yield better results in terms of getting non-health sectors 'on board'. Remarkably, although others have briefly paid attention to the role of the health sectors (*e.g.*, being pro-active in exploring the work of other sectors [19,21]), Travis et al. [18] seem to be the only ones who outline the role of the health sectors in great detail, including a description of roles and task distribution.

### 4.2. Strengths and limitations of the Behavior Change Wheel as a conceptual approach to operationalize integrated public health policies

We found that the BCW was a useful theoretical framework to operationalize integrated public health policies. However, besides its conceptual merits it also has some limitations relative to other concepts and approaches. These are outlined below, followed by a discussion of the added value provided by our proposal, relative to the other publications on the topic.

The main strength of the operationalization based on the BCW is that it provides policy makers and researchers with a basis for systematically selecting an appropriate mix of intervention functions and policy categories.

The second strength of our BCW-based operationalization is that it uses criteria by which we can explain why we regard certain policies as 'integrated'. The theoretical basis of the BCW may guide us towards policy measures that can be developed *across* different sectors. This means that integrated health policies should include intersectoral collaboration. However, the required policies and interventions will depend on what needs to change in the 'behavioral system' to bring about the desired change. This is likely to be relevant to more than one sector. For

**Table 2**
Linkage between COM-B components and intervention functions and policy categories.

| | Education | Persuasion | Incentivisation | Coercion | Training | Restriction | Environmental restructuring | Modelling | Enablement |
|---|---|---|---|---|---|---|---|---|---|
| Physical capability | | | | | ■ | | | | ■ |
| Psychological capability | ■ | | | | ■ | | | | ■ |
| Physical opportunity | | | | | | ■ | ■ | | ■ |
| Social opportunity | | | | | | ■ | ■ | | ■ |
| Automatic motivation | | ■ | ■ | ■ | | | ■ | ■ | ■ |
| Reflective motivation | ■ | ■ | ■ | ■ | | | | | |

**Table 3**
Linkage between intervention functions and policy categories.

| | Education | Persuasion | Incentivisation | Coercion | Training | Restriction | Environmental restructuring | Modelling | Enablement |
|---|---|---|---|---|---|---|---|---|---|
| Communication | ■ | ■ | ■ | ■ | | | | ■ | |
| Guidelines | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ |
| Fiscal measures | | | ■ | ■ | ■ | | ■ | | ■ |
| Regulation | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ |
| Legislation | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ |
| Environmental/ Social planning | | | | | | | ■ | | ■ |
| Service delivery | ■ | ■ | ■ | ■ | ■ | | | ■ | ■ |

example, if the COM-B assessment shows that 'opportunity' for physical activity is the problem, intersectoral collaboration is necessary for health sector officials, since policies might have to be developed to, for example, redesign neighborhoods (requiring the involvement of spatial planners). In theory, such an intervention could be developed and implemented by officials within one sector *without* intersectoral collaboration. In that case, however, we would not consider this an 'integrated' policy, but a sectoral policy. When dealing with complex public health problems, it is highly unusual for the system that is responsible for the 'stubborn' character of these problems to be improved by interventions *within* one sector. Although sectoral policies are not considered better or worse than integrated policies, the distinguishing feature of integration is that the policy is developed through the collaborative effort of multiple sectors; only then can the unique ability to change systems and achieve 'synergies' between policies manifest itself and can complex public health problems be effectively addressed. This need for intersectoral collaboration may, in fact, be the reason why the development of integrated public health policies has progressed so slowly, despite serious efforts by advocates throughout the world.

Although we do not mean to underestimate the relevance of intersectoral collaboration, we must also not *downgrade* the responsibility and ability of the health sector itself to improve public health. In India, for example, it is the women from higher socioeconomic classes who are most likely to suffer from obesity, and educating these upper classes about healthy eating might yield better results than improving their opportunities (which are relatively good) [36].

The third strength of our operationalization is that the BCW can guide us toward the most promising policy categories or intervention functions (based on the COM-B assessment), while at the same time also showing a broad range of options from which policy makers can choose (see Tables 2 and 3). This is similar to using Google maps to get to the right destination. Since this framework provides not only the route towards the destination, but can also produce a 'street view', it can also show other options within the nearby environment. This results in a more comprehensive view of the options in the vicinity of the preferred goal (*i.e.*, the intervention functions or policy categories), compared to other frameworks that describe policy options separately without linking them to a wide range of policy categories or intervention functions.

The fourth strength of the BCW approach is that its core, the 'COM-B', inherently shows mutual relationships between health determinants (*e.g.*, opportunity affects motivation). Since COM-B is described as a 'system', it explicitizes that all behavioral determinants need to be sufficiently present, *i.e.*, simultaneously and not separately.

Thus, policies based on this system will inherently show why a particular policy sector is, in theory, responsible for public health, and that the different policies should be united into a 'whole' in order to achieve an effective approach. In our opinion, such a comprehensive view of the determinants of behavior which also takes their interrelationships into account (see Fig. 2 for a visualization) can be considered not only 'effective' but also 'integrated'. In other words, since 'integration' is an ideal, and the ideal of policy makers is usually (if not always) to develop effective policies, we argue that an effective policy mix should always, in principle, be based on the integrated approach.

Besides these strengths, an operationalization based on the BCW also has some limitations. First of all, applying the BCW requires certain research skills, such as assessing *which* behavioral goals should be targeted in order to achieve health improvement or assessing *how* a healthy behavior can be achieved. These skills are related primarily to methodological issues for the COM-B assessment. For example, what instruments should be used to determine if children have a certain capability? This might present a problem for policy makers, who often lack the time and skills to figure this out. Therefore, applying our proposed operationalization will most probably require assistance by public health service officials or researchers. This is further complicated by the fact that each wicked problem is essentially novel and unique [37], so that learning from such policies is less likely to occur since such problems are not 'analytically tractable' [38]. However, if we accept that understanding the behavior that is to be changed is the starting point for any intervention and policy design, and the COM-B is a tool to support understanding of the behavior to be changed, this is, strictly speaking, more a limitation of the policy makers' skills and not of COM-B. Still, we consider this a limitation, since we aim to provide operational criteria that can guide the development of integrated public health policies in practice.

The second limitation of our operationalization is that '*success is in the eye of the beholder*'. Although the BCW incorporates many *content*-related factors, it does not describe the policy *context*. Policy 'success' cannot always be determined in a rational, scientific or foundationalist way. Sometimes, a constructive or discursive view of success might be more suitable to explain the multidimensionality of policy success [39]. A spectrum of policy outcomes might be used to capture what McConnell [39] calls the many 'grey areas' in between policy success or policy failure. Merely focusing on policy *content* diverts attention from understanding the processes which explain why intended policy outcomes fail to emerge [40]. The Behavior Change Ball (BCB) [29] was developed to take these context-related factors into account; this framework describes the ten organizational behaviors that might explain why certain 'integrated' policies are developed, implemented or sustained. For example, the BCB [29] contends that the implementation of certain policy measures requires strategic agenda-setting to have taken place, complemented by strategic level leadership and strategic policy formulation. Thus, the BCB [29] serves as a tool that can be used alongside the BCW to make implementation of certain policy choices (based on the BCW) more likely or explain policy success or failure as grounded in the policy process.

The third criticism of the BCW may be that its categories are too broad, so that no specific guidance on choosing single interventions or policy measures can be provided based only on the BCW. Nor does the BCW describe which specific policy makers should be involved when developing or implementing certain policy measures (*e.g.*, who should you involve when the BCW recommends investing in marketing?). Thus, although the BCW describes general policy categories and intervention functions, it does not elaborate on *how* to choose specific policy measures or interventions from the broad range of options that are recommend by linkages between functions and categories. For example, if one should choose to improve the opportunity for physical activity, one can choose from at least three intervention functions (restriction, environmental restructuring, enablement), and then three policy categories for restriction, five policy categories for environmental restructuring, and six policy categories for enablement. This yields so many options that it becomes difficult for policy makers to choose. A forthcoming Guide to intervention design and evaluation based on the BCW (Michie, Atkins and West, in preparation) shows how a comprehensive taxonomy of behavior change techniques (BCTs – the 'active' component parts in behavior change interventions that are observable, replicable, and irreducible; [41]) fit within each intervention function and, like intervention functions and policy categories, should be selected on the basis of evidence, relevance, practicability, affordability, and legal and moral acceptability.

### 4.3. Added value of our operationalization

The added value of our operationalization is two-fold: (1) Our operational criteria can enable policy makers and researchers to *distinguish* cases (*e.g.*, documents, public government statements) that satisfy the criteria of 'integration', using criteria with a theoretical foundation. As such, our operationalization can be used alongside existing operationalizations, since they serve different goals. For example, the BCB [29] can be used to assess policy *processes*, while Travis's stewards concept [18] can be used to assess policy *actors*, and our proposed operationalization as described in this paper can be used for the development of integrated public health policy *content*. Thus, our operationalization should not be seen as a stand-alone exercise to get a grip on the development and implementation of integrated public health policies. Rather, we recommend using it *alongside* other operationalizations that outline other aspects of integrated public health policies in more detail. (2) It serves as a tool to set clear goals for any attempt to develop 'integrated' public health policies. This is especially important since previous publications only describe that integration is at the 'core' of policy approaches, but do not describe how to set such goals. Since the BCW is inherently about the way 'social determinants' of health can be assessed in an 'integrated' way (*i.e.*, the goals of integrated public health policies) in the COM-B model, we consider that it provides more specific suggestions how integration can be achieved [15].

Previous publications have, as far as we know, failed to propose concrete operational criteria that can be used to assess the core values of integrated public health policies. And, looking at the enormous number of visionary or symbolic documents, these seem to have been 'over-communicated' over the last twenty years [1–8,18–25], while policy practice seems to be stagnating [*e.g.*, 8]. Although we do not want to overestimate the added value of our operationalization, we feel it is a crucial missing piece of the puzzle which might turn the 'rhetoric' into reality [42].

## 5. Conclusion

We have proposed an operationalization of the concept of integrated public health policies which is based on the Behavior Change Wheel. This operationalization includes two criteria: (1) whether the combination of policies (*e.g.*, as described in policy documents) enables a mix of interventions that make the behavioral system function (in terms of motivation, capability and opportunity), and (2) whether the policy is developed and implemented by the relevant policy sectors from different policy domains (*i.e.*, intersectoral collaboration). These criteria may be used to make monitoring or guiding the development of integrated public health policies easier for researchers, practitioners (*e.g.*, public health service officials) and policy makers. However, it should be clear that, as with any operationalization, this is only the beginning of a rather extensive exercise of applying these operational criteria. We therefore recommend that policy makers, assisted by public health service officials, or researchers, use this operationalization to guide policy development, and analyze policy documents. By introducing this operationalization in the field, we hope to stimulate the debate on the operationalization of integrated public health policies.

## Competing interests

We declare we have no competing interests.

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AMH and JH conceived the idea. AMH drafted the manuscript. JH, MJ, SK, JG, SM and NdV helped to refine the manuscript. SM has ensured that the assumptions of the BCW are correctly formulated. MJ and HvO ensured the manuscript is in line with current developments in the health policy field.

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