What should all health professionals know about movement behaviour change? An international Delphi-based consensus statement

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Abstract

Objective: The World Health Organization has called for action to integrate physical activity promotion into healthcare settings, yet there is a lack of consensus on the competencies required by health professionals to deliver effective movement behaviour change support. The objective of this study was to establish key competencies relevant for all health professionals to support individuals to change their movement behaviours.

Methods: Consensus was obtained using a three-phase Delphi process. Participants with expertise in physical activity and sedentary behaviour were asked to report what knowledge, skills, and attributes they believed health professionals should possess in relation to movement behaviour change. Proposed competencies were developed and rated for importance. Participants were asked to indicate agreement for inclusion, with consensus defined as group level agreement of at least 80%.

Results: Participants from 11 countries, working in academic (55%), clinical (30%), or combined academic/clinical (13%) roles reached consensus on 11 competencies across three rounds (n=40, n=36, n=34, respectively). Some competencies considered specific to certain disciplines did not qualify for inclusion. Participants agreed that health professionals should recognise, take ownership of, and practice interprofessional collaboration in supporting movement behaviour change; support positive culture around these behaviours; communicate using person-centred approaches that consider determinants, barriers, and facilitators of movement behaviours; explain the health impacts of these behaviours; and recognise how their own behaviour influences movement behaviour change support.

Conclusion: This consensus defines 11 competencies for health professionals which may serve as a catalyst for building a culture of advocacy for movement behaviour change across health disciplines.

Key points

- Movement behaviours (specifically, physical activity and sedentary behaviour) are important modifiable determinants of health. Health professionals are well placed to support patients to optimise their movement behaviours, however, multidisciplinary consensus defining the required competencies to effect change is lacking.
- Using a Delphi method, participants with expertise in physical activity and/or sedentary behaviour developed and agreed upon 11 competencies relevant to all health professionals.
- We recommend the integration of these competencies into health professional training and professional accreditation standards.

- To promote movement behaviours in practice, all health professionals should recognise and be able to engage in interprofessional collaboration, communicate effectively using person-centred approaches, and possess a strong understanding of the benefits of positive movement behaviours. They should be able to competently contribute to a positive culture around movement behaviours and be able to support individuals in making sustainable changes for better health outcomes.
- Establishing competencies for all health professionals in movement behaviour change is the first step. Bridging the gap between evidence-based recommendations and real-world application will require further research exploring the implementation of these competencies into practice, including broad consultation with a range of stakeholders including patients/consumers, health professionals, educators, and policy makers in healthcare settings.
- Future research should also explore the relevance of the competencies among participants from under-represented groups and regions, ensuring a more comprehensive understanding of movement behaviour across diverse contexts.

Introduction

Physical activity and sedentary behaviour are two critical movement behaviours that are closely linked to health and wellbeing outcomes.[1, 2] Increasing population levels of physical activity and reducing sedentary behaviour is a recognised global public health priority.[3] However, 1.4 billion adults worldwide are classified as insufficiently active[4] and up to two-thirds of adults engage in levels of sedentary behaviour that place them at high-risk of poor health outcomes.[5] Physical inactivity costs health systems approximately $27 billion USD annually, equating to a total cost of $300 billion USD between 2020 and 2030 if physical inactivity prevalence remains stable.[3] The World Health Organization (WHO) has devised a Global Action Plan, calling for multilevel action to reduce the prevalence of physical inactivity by 2030, including the integration of physical activity promotion into primary and secondary health care services.[6]

Health professionals are well placed to promote these important health behaviours given the diversity of settings where healthcare is delivered and services provided, as well as their

repeated opportunities to promote health-related behaviours over time.[7] They are regarded as credible sources of health information,[8-14] with one in four patients reporting they would be more active if they were advised to by a health professional.[15] Physical activity and/or sedentary behaviour change counselling by health professionals is desired by patients[16] and can lead to increases in physical activity[15] and reductions in sedentary behaviour.[17] However, many patients do not receive any advice about these behaviours from their healthcare providers.[18] Although various health professionals typically acknowledge that physical activity promotion is a part of their role,[19-21] they report low levels of knowledge, skills and sometimes confidence to do so,[19, 21-23] which can contribute to a lack of physical activity promotion in their practice.[21]

Training programs, either pre-professional or in-service, show promise in addressing these barriers and in increasing the delivery of physical activity advice to patients.[24] Important physical activity topic areas relevant for health professionals' training have been identified,[25] however, there is currently no consensus on the specific minimum competencies required by all health professionals to provide movement behaviour change support. Further, to date, the focus has been on physical activity promotion, with less literature investigating sedentary behaviour change in healthcare settings,[17] despite sedentary behaviour being a distinct, but related, health behaviour.[26]

To address these evidence gaps, this study aimed to gain consensus on the key competencies required for all health professionals to support individuals to change their movement behaviour, specifically, physical activity and sedentary behaviour, by utilising a multi-round Delphi method.[27] Specifically, our objectives were: to gain opinions from a range of health professionals regarding the knowledge, skills and attributes all health professionals need in order to promote positive movement behaviours; to use these data to generate draft competencies; and, to determine the importance and relevance of these identified competencies for all health professionals from the perspectives of this expert panel and subsequently establishing expert consensus.

Methods
Study design

4

The Delphi method was chosen as it allows for greater validity of findings in collecting the opinions of a group, rather than opinions of individuals.[28] A traditional Delphi study design was used,[29] with multiple phases included (Figure 1). In Phase 1 (exploration and design), the steering group was established, consisting of experts from the United Kingdom (UK), Australia, New Zealand, and The Netherlands with expertise in movement behaviour and behaviour change, and experience in practising, or conducting research, in health care settings (TA, EL, SB, RF, CLH, GH, KM, HR, IR, SG). The steering group designed and developed the study protocol and identified potential participants (detailed below). Phases 2 to 3 involved recruitment of participants and a series of structured survey rounds to facilitate discussion among experts and to reach consensus regarding competencies required by all health professionals to support individuals to change their movement behaviours. Surveys were administered online, hosted by Qualtrics[XM]. E-mail was used to send survey links to participants for each round. The study received ethics approval from the University of Queensland (2022/HE000859). Conducting and Reporting Delphi Studies (CREDES) guidelines were followed to ensure adequate study conduct and reporting.[30]

Figure 1. Flow diagram of Delphi study process

Equity, diversity, and inclusion statement

Our authorship team (and steering committee) consisted of nine women and one man, including junior, mid-career and senior physical activity researchers from a range of health professional disciplines (physiotherapy, exercise physiology, medicine, and public health). All authors have experience in practising, and/or conducting research, in health care settings. Members of the authorship group were from Australia, the United Kingdom, and the Netherlands. We made efforts in our recruitment strategy to sample a range of ages, genders, demographic characteristics and, in line with inclusion criteria, expertise in physical activity and sedentary behaviour in healthcare contexts.

Phase 1: Steering group - Exploration and study design

The steering group were responsible for selection of the study design and protocol development, and preparation of the content for the Delphi rounds. The steering group did not participate in the surveys; however, the steering group supervised and monitored the

process across rounds. All steering committee meetings were designed to accommodate the geographical differences among members, resulting in a mix of synchronous interactions via online meetings, as well as asynchronous, offline, opportunities for feedback. This hybrid approach ensured that all members, including individuals from different locations, could actively contribute and participate in discussions. By incorporating both online and offline components, the meetings provided flexibility and allowed for contributions in a variety of contexts.

Phase 2: Selection, identification, and recruitment of participants
Participants were identified in two ways. Firstly, we used purposive sampling by asking steering group members to identify potential participants with expertise in the field. Inclusion criteria included individuals with considerable knowledge, experience and education in physical activity and sedentary behaviour within healthcare contexts. Professional backgrounds targeted included: (i) academics/researchers and published authors in the physical activity and sedentary behaviour field; and (ii) public health and health professionals involved in the fields of physical activity and sedentary behaviour, or where their key role was the promotion/delivery of movement behaviour change. Efforts were made to recruit participants from diverse regions, roles, and disciplines in an effort to gather a broad range of perspectives, and no specific exclusion criteria were applied in these aspects. Secondly, we used snowball sampling by asking the potential participants identified by the steering group to nominate peers. The steering committee decided whether nominated individuals met the inclusion criteria. A minimum of at least 30 experts was set as the target sample size by the steering committee. This was greater than the recommended minimum of 10-18 experts[31] to account for prospective drop-outs and to allow for the range of experience deemed necessary to inform this work (settings, academics, clinicians, country, professional backgrounds, rurality).

Individuals who met the inclusion criteria were invited to join the study by email, sent by a person external to the research team, outlining the study objectives and design, and the commitment required for participation, including a link to the information sheet, consent form and online survey should they choose to participate.

Phase 3: Data collection and analysis

An all-rounds approach[32] was used, where participants consenting in round one were invited to participate in all subsequent rounds irrespective of whether they responded in the preceding round/s. Throughout the Delphi process, participants were identifiable to the research team but not to each other. The survey was anonymous, but in the first-round survey participants were asked to generate their own unique identification code, which they were asked to use for each subsequent round. Survey data were separated from identifiable data, with the identifying codes used to organise survey responses and to indicate where follow up reminder emails were required. As the Delphi method uses an iterative process, each survey round was built from the findings from the previous one and was accompanied by a cover sheet that outlined the intentions of the round. It was anticipated that three rounds would be undertaken, with the steering group conscious of participant drop-out, which can frequently limit the number of rounds performed.[31] Stop criteria were defined as completion of five rounds, or if consensus was reached.

Round one:

The two lead authors (TA, EL) and the senior author (SG) developed the first-round survey questions. They were then piloted with the other steering group members (SB, RF, CLH, GH, KM, HR, IR), with adjustments made to the questions and format of the survey based on their feedback. It was then piloted with a working clinician (occupational therapist) external to the research team, with feedback provided on the usability and clarity of the content. This pilot phase served as an important step in refining the round one survey. The clinician had the opportunity to interact with the survey and to provide informal feedback on various aspects, including its usability, clarity of instructions, and overall content. The informal nature of the feedback allowed for open and candid discussions, enabling identification of potential areas for improvement.

Participants were first asked to complete a brief demographic questionnaire, which included gender, age, country of residence, current primary role, education, years of experience working in their field, clinical settings worked in, and clinical background. Participants were then asked five open-ended questions to understand the knowledge, skills, attributes, systems, and any other elements they believed health professionals needed to possess or learn to effectively deliver movement behaviour change in health care settings (Supplemental File 1). For the purpose of this study, participants were asked to consider the definition of health

professionals in line with the International Standard Classification of Occupations (ISCO), which stipulates health professionals as those who *"conduct research, improve or develop concepts, theories and operational methods, and apply scientific knowledge relating to medicine, nursing, dentistry, pharmacy and the promotion of health".*[33]

Qualitative responses were independently collated and reviewed by two authors (TA, EL) to produce a list of statements reflective of the data collected. Thematic analysis was then undertaken to condense responses into key themes using an inductive approach.[34] The themes identified were then developed into 32 proposed competencies by two authors (TA, EL), before being reviewed by the steering committee for consistency with the raw data. Wherever possible, the experts' own words were used to maintain authenticity and reduce bias. When shaping the competencies after round one responses, the steering group omitted any concepts resembling broader professional competencies as they would be addressed in specific health discipline programs, through competency statements and accreditation standards. To ensure comprehensibility of the draft competencies, written formal feedback on the clarity of the draft competencies was sought from an external multidisciplinary clinician working group (consisting of a nurse, physiotherapist, dietician, and doctor). Each member of the clinician group was invited to review the draft competencies and provide written feedback, focusing on aspects such as clarity of language. The steering group then had a final discussion to confirm the 32 proposed competencies to present back to participants for the second round.

Round two

In round two, the survey presented the proposed competencies developed in round one and asked participants to score each proposed competency on an 11-point Likert scale (ranging from 0 = Extremely unimportant to 10 = Extremely important). Using a measure of central tendency as a definition of consensus,[35] the cut off for item inclusion was a median score of ≥7. Quantitative data were analysed in Microsoft Excel to produce measures of central tendency and dispersion (median and quartile deviation) for each item. In round two, participants were also given the opportunity to comment on each competency and provide feedback or suggestions for any refinements. Qualitative feedback was thematically analysed by two authors (TA, EL), and reviewed with the steering group to determine what, if any, modifications were required before the competencies were presented in round three.

Round three

In round three, the survey presented the remaining competencies identified as important in round two. For each competency, participants were asked to give one of three responses regarding whether it should be included as a competency for all health professionals: *agree; disagree – depends on profession; disagree*. An open text response box was also available if participants selected *disagree – depends on profession*, so they could provide further details on which profession/s they thought the competency would be relevant for. Using percent agreement as a definition of consensus,[35] we pre-specified a score of ≥80% agree as the cut off for element inclusion.

Results

Sixty-three prospective participants were identified by the steering committee and invited to participate. Of those, 40 were recruited, provided consent, and subsequently completed the first survey (64% recruitment rate). Thirty-six of the 40 participants completed the second survey (90% response rate) and 34 completed the third survey (85% response rate). Thirty-two participated in all three rounds, resulting in a full completion rate of 80%. Participants resided in 11 different countries. Most resided in the United Kingdom (33%, 33% and 29% of those who responded in rounds one, two and three, respectively), Australia (20%, 17% and 15%) and Singapore (18%, 19% and 21%). Remaining participants resided in Canada, the United States, The Netherlands, New Zealand, Belgium, Chile, South Africa, and Brazil. Participant characteristics for each round are presented in Table 1. All participants had over five years' experience in movement behaviour change promotion, with clinical backgrounds across eight different disciplines. Participants were mostly currently working in an academic role (55%, 56% and 59%) followed by clinical (30%, 28% and 29%) and combined academic/clinical (13%, 14% and 12%) roles.

Table 1: Participant characteristics

	Round 1 (n=40)	Round 2 (n=36)	Round 3 (n=34)
Gender, female n (%)	23 (58)	21 (58)	19 (56)
Age, years, median (range)	47 (29-64)	47 (29-64)	46.6 (29-64)
Country of residence, n (%)			
United Kingdom	13 (33)	12 (33)	10 (29)
Australia	8 (20)	6 (17)	5 (15)
Singapore	7 (18)	7 (19)	7 (21)
Canada	2 (5)	2 (6)	2 (6)
United States	2 (5)	2 (6)	2 (6)
Netherlands	2 (5)	2 (6)	2 (6)
New Zealand	2 (5)	2 (6)	2 (6)
Belgium	1 (3)	1 (3)	1 (3)
Chile	1 (3)	1 (3)	1 (3)

South Africa	1 (3)	0 (0)	1 (3)
Brazil	1 (3)	1 (3)	1 (3)
Current primary role, n (%)			
Academic	22 (55)	20 (56)	20 (59)
Clinical	12 (30)	10 (28)	10 (29)
Combined academic/clinical	5 (13)	5 (14)	4 (12)
Other	1 (3)	1 (3)	0 (0)
Education, n (%)			
PhD	26 (65)	24 (67)	23 (68)
Masters	9 (23)	9 (25)	7 (21)
Bachelors	4 (10)	2 (6)	3 (9)
Other	1 (3)	1 (3)	1 (3)
Years of experience, n (%)			
5 to 10	6 (15)	6 (17)	6 (18)
11 to 20	15 (38)	13 (36)	13 (38)
> 20	19 (48)	17 (47)	15 (44)
Settings worked in[a], n (%)			
Primary care	21 (53)	20 (56)	16 (47)
Secondary care	26 (65)	24 (67)	21 (62)
Community	21 (53)	18 (50)	18 (53)
Sports medicine	7 (18)	7 (19)	7 (21)
Academia	13 (33)	13 (36)	12 (35)
Public health	3 (8)	3 (8)	3 (9)
Military	1 (3)	1 (3)	1 (3)
Rural/remote	4 (10)	4 (11)	4 (12)
Clinical background[b], n (%)			
Total with clinical background, n %	31 (83)	30 (83)	28 (82)
Physiotherapy	13 (33)	13 (36)	12 (35)
Medicine	6 (15)	6 (17)	5 (15)
Nursing/midwifery	3 (8)	3 (8)	3 (9)
Exercise science/physiology	3 (8)	2 (6)	2 (6)
Psychology	2 (5)	2 (6)	2 (6)
Sports science	2 (5)	2 (6)	2 (6)
Occupational therapy	1 (3)	1 (3)	1 (3)
Social work	1 (3)	1 (3)	1 (3)

[a]Participants were asked to self- report settings worked in and so multiple responses were possible. Expressed as a percentage of the respondents for the corresponding round.
[b]Where relevant for those participants with a clinical background, expressed as a percentage of the total respondents for each round.

Round one

In the first round, participants felt that health professionals have a shared responsibility to promote movement behaviours using tailored approaches to care, and that they need to know about principles of movement, health promotion, assessment tools and how to promote sustainable change, while considering resources (particularly time management) and organisational factors. Themes derived from the qualitative data are summarised in Supplemental File 2. These themes were developed into 32 proposed key competencies, which are listed (in no particular order) in Supplemental File 3.

Round two

Participants in round two rated their perceived importance of the 32 proposed competencies. Qualitative feedback was considered for each competency and discussed amongst the steering committee to determine what, if any, modifications were to be made to the competencies. All 32 competencies had a final median score greater than seven, indicating that participants perceived all competencies as important for inclusion with no competencies excluded in this round. Based on qualitative feedback, two competencies were combined meaning 31 competencies were taken forward to round 3. However, participants also provided consistent feedback that many of the competencies were only relevant for some professions. Although stipulated in the instructions to participants, the research team felt it may have been overlooked that participants' ratings should be based on the relevance of these competencies for *all* health disciplines, given some discrepancies between rated level of agreement for inclusion and qualitative data. For example, where some participants rated a high level of agreement of inclusion, but then commented that this would only be relevant for some disciplines. Subsequently, round three was modified to ensure participants would rate whether competencies should be included in the final set for all health professionals. If they disagreed, they had the opportunity to note if this was because it was only relevant to some health professionals (and if so, to list those health professionals). A summary of measures of central tendency, level of consensus and modifications made based on round two findings are presented in Supplemental File 4.

Round three

Participants in round three rated whether they agreed or disagreed that each of the 31 modified competencies (see Supplemental File 4) should be included. Eleven competencies reached agreement >80% and so were included in the final set, which is listed in Table 2 ordered by level of agreement. Twenty competencies did not reach agreement and were excluded, with 18 of those rated by 20% or more of participants as not being suitable for the final set due to only being relevant for some health disciplines. A summary of the findings from round three (including level of agreement, consensus of all competencies and a summary of the qualitative findings) is provided in Supplemental File 5. The findings are also provided in an infographic (Figure 2) and a lay summary (Supplemental File 6).

Table 2: Competencies that all health professionals should possess to support movement behaviour change

Competency	Level of agreement
Recognise that all health professionals have an important role in supporting movement behaviour change	100%
Contribute to and promote a positive movement behaviour change culture that supports its sustainable integration into wider clinical practice	97%
Explain the importance of physical activity and sedentary behaviour in the public health context	94%
Consider the common barriers and facilitators to movement behaviours (including sociocultural, biomedical, environmental, and behavioural factors)	94%
Recognise the multifactorial determinants of movement behaviours (for example, social, behavioural, or cultural influences on a person's movement behaviours)	91%
Support individuals to optimise movement behaviours through effective interprofessional collaboration	88%
Understands both the independent and combined effects of total physical activity and sedentary time on health	88%
Take ownership over their role in the promotion of movement behaviour change	88%
Recognise how the health professional's own movement behaviours can influence their engagement with movement behaviour change delivery	85%
Use person-centred approaches to facilitate shared decision making in movement behaviour change support	85%
Use effective communication strategies to build therapeutic rapport and facilitate movement behaviour change	82%

Figure 2: Infographic summarising the 11 agreed upon competencies

Discussion

Using a Delphi method, 11 competencies for all health professionals to support movement behaviour change (specifically, physical activity and sedentary behaviour) were established. Expert participants agreed that all health professionals should recognise and take ownership of their role in supporting movement behaviour change; work interprofessionally to support patients to change their movement behaviours and assist with creating a positive culture around movement behaviour; understand and be able to communicate the important health impacts of movement behaviours; consider individual health determinants which could influence patient movement behaviour; and recognise how their own movement behaviours can impact their willingness to provide movement behaviour change support in their practice. To our knowledge, this is the first attempt to develop consensus on competencies for all health professionals regarding movement behaviour change.

"Recognise that all health professionals have an important role in supporting movement behaviour change" was the competency rated as most important in round two (median 10.5)

and had the highest level of agreement (100%) in round three. This finding is consistent with previous research reporting that most health professionals agree that they have a role in promoting movement behaviour change.[36] However, different disciplines often view their role in the promotion of movement behaviour change differently, view movement behaviour change as relevant only for movement specialists (such as exercise physiologists and physiotherapists),[21] and/or are uncertain of the extent to which they should provide advice.[19, 37] For instance, nurses tend to view their role as minimal compared to other health professionals[21] and are less inclined to accept responsibility for their role in promoting movement behaviours.[19] However, they have contact with a large number of patients across a variety of settings and have the potential to leverage their trusted patient relationships to promote positive movement behaviour change and, if required, refer to relevant members of the interprofessional team.[38] This presents a challenge in identifying competencies that are relevant for all health professionals to support individuals to change their movement behaviour. This is a difficulty often encountered in the health field when trying to create competencies across a number of disciplines, due to the breadth of practice trying to be captured.[39-41] We addressed this in our consensus development by including a third round in the Delphi process, where we asked participants to clarify whether competencies were relevant to all health professionals. This resulted in consensus for 11 competencies common to all health professionals.

Interprofessional collaboration was recognised as a key competency for all health professionals. The importance of collaboration between health professionals is supported by previous research that has highlighted the role of the interdisciplinary team in helping patients to adopt and sustain healthier behaviours.[42, 43] Effective collaboration requires shared knowledge, practices and effective methods of communication.[44, 45] However, research suggests that health professionals from a range of disciplines feel underprepared to provide movement behaviour change support in practice,[21, 46-48] which may limit their contribution in interprofessional teams. Integration of established competencies can address this barrier by ensuring that all health professionals share common foundational knowledge and skills to support collaborative practice.

Throughout each round of surveys, qualitative and quantitative data highlighted the importance of the health professional's own movement behaviours in their promotion of movement behaviour change, with the final competency list including *"Recognise how the*

health professional's own movement behaviours can influence their engagement with movement behaviour change delivery". This has been established in previous research that has reported associations between the health behaviours of health professionals and their promotion of movement behaviours to patients.[49-52] This highlights the importance of promoting positive movement behaviours to clinicians as well as patients, which could be achieved through stakeholders and organisations providing staff wellbeing initiatives. There may be the potential for a multilayered effect of improving the health and wellbeing of health professionals, increasing their engagement with the promotion of movement behaviour change and ultimately, enhancing patient outcomes.

Strength and Limitations

A key strength of the study was its diverse range of international participants with relevant expertise, which supports the generalisability of the findings across international settings. The study intentionally prioritised recruitment of a heterogeneous sample of participants who were experienced in research, teaching, and delivering movement behaviour change in practice, and who were from a wide variety of professions across different settings. Although we recognise the final sample may not adequately represent the full spectrum of views held by individuals within every profession, the Delphi design has its strengths in generating group-level rather than individual-level findings. The Delphi method is a well-established research approach that uses expert opinions to identify consensus, but there are no standard quality parameters to evaluate Delphi methods in healthcare research. The present study was designed in line with quality indicators proposed by Diamond,[35] and reported in line with CREDES guidelines[30] to enhance transparency of the research process and replicability of the findings.

Several limitations must also be noted. Despite the strengths of a Delphi study design, it is important to acknowledge that consensus does not automatically equate to the correct conclusion and the exclusion of other competencies based on the absence of consensus does not render them irrelevant. Rather, other competencies where disagreement was present may warrant further investigation as to why conflicting views were present. It was not possible to analyse the stability of responses between rounds, as the nature of the questions changed. However, by examining the descriptive statistics, in concurrence with thematic analysis, we were able to gain a better understanding of the stability of participant responses and identify

any notable shifts or trends that may have occurred throughout the Delphi process. Analysis of qualitative data from round two led us to modify round three questions, however, we acknowledge if this modification to make the intended aims of the study more explicit was done in earlier rounds, this may have reduced the total number of rounds. Despite efforts to recruit a diverse range of expert participants, there is under-representation from the global south and from some health professional disciplines. This may limit the generalisability of the findings. Recognising the importance of global perspectives and the need for equitable representation, future research endeavours should prioritise efforts to explore the relevance of the competencies among participants from under-represented groups and regions, ensuring a more comprehensive understanding of movement behaviour across diverse contexts. Finally, steering group members were all from high income countries, namely Australia, UK or Europe, and thus the group did not include representation from all regions. Attempts were made to address this through intentionally recruiting participants from a range of countries and disciplines.

Implications of the findings

There is a need to reduce sedentary time and increase physical activity to reduce the burden on healthcare systems and optimise health and wellbeing outcomes of populations around the world. The World Health Organization has called for the integration of physical activity promotion into healthcare settings, capitalising on the credibility afforded to health professionals and their access to a large proportion of the population across the lifespan.[6] To enable health professionals to deliver such support, they must have a foundational level of competence and this competency must be achieved across disciplines given the shared responsibility of movement behaviour change support. The development of competencies for all health professionals is a foundational step to enhancing the provision of quality health professional education which is necessary in ensuring they are capable of integrating movement behaviour change support into their practice.

Translating these competencies into the education of health professionals is the next challenge in advancing and accelerating this agenda. It will require buy in from multiple stakeholders across multiple levels, including government, professional bodies and societies, institutional leaders, educators and learners, along with consultation with consumers. Institutional leaders, educators and learners will need to use the competencies to inform the

development of learning outcomes, which describe the specific expectations of what the learner will be able to do, know or value on completion of their study.[53] Learning outcomes will need to be course- and discipline-specific, recognising that integration needs to complement existing professional standards, curricula, and discipline specific scope-of-practice. While delivery of quality training (at both the pre-service and in-service level) is critical to equip healthcare professionals with the necessary knowledge and skills to promote movement behaviour change in practice, buy in from the 'top', including government and professional bodies will ultimately ensure accountability through policy and professional standards in an environment where there are competing priorities and increasing concerns about crowded curricula.[54, 55] Monitoring the extent to which health professionals' integrate movement behaviour change support will help to inform whether the competencies are changing practice and what further action might be needed.

Health professionals have a key role to play in the provision of the movement behaviour change support needed to improve health and wellbeing outcomes among patients and reduce the burden on healthcare systems globally. Ensuring health professionals are well-equipped to support their patients to improve health behaviours is critical in contributing to global targets of increasing physical activity and reducing sedentary time. The established competencies have the potential to advance practice and to promote a coordinated, collaborative approach to achieving these targets.

Author contributions

Original study idea was formulated by KM, SG and HR, with ongoing development of study design supported by the entire research team. Expert guidance on the Delphi process provided by CLH and RF. TA and EL led data collection and analyses of the three rounds and drafted the manuscript. All authors were involved in the interpretation of analyses as appropriate. All authors provided feedback on the manuscript and approved the final version.

Declaration of conflicts of interest

The authors have no conflicts of interest to declare.

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