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# HMP-REaDER: MENPA guidelines for designing and reporting research on holistic movement practices, including yoga, tai chi, qigong, and conscious dance

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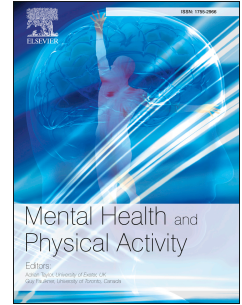
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# Journal Pre-proof

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Ineke Vergeer, Adrian Taylor, Mats Hallgren, Stuart J.H. Biddle



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**HMP-REaDER: MENPA guidelines for designing and reporting research on holistic movement practices, including yoga, tai chi, qigong, and conscious dance**

Ineke Vergeer<sup>1</sup>

Adrian Taylor<sup>2</sup>

Mats Hallgren<sup>3</sup>

Stuart J.H. Biddle<sup>1,4</sup>

<sup>1</sup> University of Southern Queensland, Australia

<sup>2</sup> University of Plymouth, UK

<sup>3</sup> Karolinska Institutet, Sweden

<sup>4</sup> University of Jyväskylä, Finland

In October 2021, MENPA published a position statement on yoga and other holistic movement practices (Taylor et al., 2021), along with a commissioned commentary (Vergeer & Biddle, 2021). Holistic movement practices (HMPs) can be defined as physical practices embedded within holistic philosophies of well-being (Vergeer, Johansson, & Cagas, 2021), implying such practices go beyond the physical to deliberately include other ingredients – mental, emotional, social, and/or spiritual. Vergeer et al. (2021) therefore argued that it is useful to treat HMPs as a category of physical activity. Typically, HMPs include long-established and traditionally Asian practices such as yoga, tai chi, and qigong, but a range of more modern HMPs also exist, including various free movement-based practices sometimes referred to as “conscious dance” (Laird, Vergeer, Hennelly, & Siddarth, 2021).

In their position statement, Taylor et al. (2021) indicated that manuscripts on HMPs “including a substantial amount of physical activity (gross motor movement)” would be considered for peer review by MENPA. The position was not that HMPs may or may not be effective but that as a scientific journal MENPA wished to clearly indicate the boundaries

that define the journal's identity with respect to emerging lines of research that involve physical movement and embodiment relevant for applied mental health promotion settings. In this way, the position statement aimed to optimise transparency in the reporting of methods and procedures, the assessment of fidelity (from intervention design, training, delivery, receipt and enactment) and generalisability of research. Taylor et al. (2021) also proposed that they would collaborate with Vergeer and Biddle in developing a checklist for careful documentation of intervention content, to aid researchers in the design, conduct, and reporting phases of their research, making any manuscripts submitted more relevant to the aims and scope of MENPA.

In considering this suggestion, we examined several existing reporting guidelines, in particular the CONSORT standards (CONSolidated Standards Of Reporting Trials; Moher et al., 2010) and the various extensions proposed to make these more specific to certain types of interventions. Such extensions include CONSORT-NPT (CONSORT extended for Non-Pharmaceutical Trials; Boutron, Altman, Moher, Schulz, & Ravaud, 2017; Boutron, Moher, Altman, Schulz, & Ravaud, 2008), CONSORT-SPI (CONSORT extended for Social and Psychological Interventions; Grant et al., 2018), TIDieR (Template for Intervention Description and Replication; Hoffmann et al., 2014), and CERT (Consensus Exercise Reporting Template; Slade, Dionne, Underwood, & Buchbinder, 2016). A recent addition to the list of proposed guideline extensions is CLARIFY (Checklist stAndardising the Reporting of Interventions for Yoga; Moonaz, Nault, Cramer, & Ward, 2021b; Ward, Nault, Cramer, & Moonaz, 2022), specifically designed for yoga studies, including interventions, observational studies and case reports. Supplement 1 provides an overview of CONSORT-SPI, TIDieR, CLARIFY and CERT, with overlapping items placed alongside each other.

While these existing guidelines (with the partial exception of CLARIFY with its focus on yoga) are useful in providing researchers with *general* information about what should be

reported in HMP trials (protocols and main findings), we felt that more specific guidelines were needed to do justice to the nature of HMPs. We specifically wanted to highlight some issues relevant to HMPs' core feature of embedding physical movement within holistic philosophies of well-being, and the need to disentangle physical from additional components, which are not or less explicitly included in the other checklists. We therefore set out to develop an HMP-specific checklist that could be used (initially) by authors submitting HMP-based papers to MENPA, and ultimately by other researchers conducting HMP research. We believe these HMP-specific guidelines will result in more transparent and comprehensive reporting, enabling trials to be compared and contrasted with greater confidence, and ultimately, lead to higher standards of evidence.

As TIDieR was intended as an extension of CONSORT item 5, description of the intervention (Hoffmann et al., 2014), and both CERT and CLARIFY were inspired by the TIDieR checklist, we mostly based our checklist on the TIDieR categories (why, what, who provided, how, where, when and how much, tailoring, modifications, how well) and adapted or extended these to fit HMPs. Alongside, we considered CLARIFY items, and, like CLARIFY, ended up using different labels for the categories than the original labels used in TIDieR. We did not conduct a full-scale Delphi process as was used to develop CONSORT (Boutron et al., 2017; Grant et al., 2018), TIDieR (Hoffmann et al., 2014), CERT (Slade, Dionne, Underwood, Buchbinder, et al., 2016), and CLARIFY (Ward et al., 2022), but went through a review and discussion process among the authors after a draft list was produced by the first author. The paper was then reviewed by members of the journal editorial team.

The checklist we developed can be referred to as HMP-REaDER (Holistic Movement Practices REsearch DEsign and Reporting) guidelines. Table 1 provides an overview of the HMP-REaDER items, which are explained in more detail below. We have tried to make these guidelines as inclusive of HMP issues as possible, but we acknowledge that covering all

items and sub-items may be burdensome and not always applicable or pertinent. We have therefore asterisked items in Table 1 that we deem essential to be addressed, leaving the others as desirable. Of note, we strongly encourage authors to consider the relevance of these latter items to their study. They may be very relevant to a specific HMP or research question, in which case description is strongly advised and may be requested by editors or reviewers if absent. If paper length is an issue, authors are encouraged to cover information succinctly in the text but provide additional detail in supplementary documents. We have provided a user-friendly version of the checklist that authors can use upon submission in Supplement 2.

### **Explanations**

In this section, we provide explanations and justifications for the included items. Where items are self-explanatory or very similar to other lists, we have provided minimal explanation.

### **Background**

1 Provide a description of the background of the HMP, including its physical and holistic ingredients and philosophy.

- 1a. Describe the physical nature of the practice, in particular the type(s) of physical activity with an indication of its demands on physical fitness parameters such as cardiorespiratory, muscular, flexibility, and neuromotor fitness
- 1b. Describe the holistic ingredients of the practice, i.e., those that are additional to the physical and may be of a mental, emotional, psychophysiological, cognitive, social, and/or spiritual nature
- 1c. Describe the holistic philosophy (this may be brief, with reference to more extensive accounts) and how this is reflected in the teaching

### ***Explanation***

As HMPs go beyond exercise to purposefully include additional components aimed at holistic well-being, it is important to provide an explanation of these additional components and how they link with the movement aspects of the practice. An indication of the holistic philosophy will provide a context for understanding the ingredients and processes in the practice. Even when holistic elements have been excluded from the actual intervention for reasons of tailoring to the study population or context (see item 6e), an acknowledgment of the holistic philosophy is important to keep in perspective that HMPs may start out holistic but become diluted when they become more widespread (while still keeping the overall label), a process that is not without controversy within HMP communities (Vergeer et al., 2021).

### **Rationale & Theory**

2 Describe any rationale, theory, or goal of the elements essential to the intervention

2a. Describe the expected relationship between active ingredient(s) and mental health processes/outcome(s), with hypothesized mechanisms where possible, differentiating as much as possible between physical and holistic ingredients

- i. Where possible, include theoretical frameworks about the mechanisms of physical activity affecting mental health processes and outcomes
- ii. Where possible, include theoretical frameworks about the mechanisms of the holistic component(s) affecting mental health processes and outcomes

2b. Describe the rationale for the choice of comparison group or condition, making a link with the research question and study objective(s)

***Explanation***

**2a.** It is important to give some attention to theoretical assumptions and research evidence about the relationship between ingredients of the program and the measured outcomes. This is particularly important when it comes to distinguishing between components of the practice that are typical within physical activity contexts, and those that are specific to the HMP examined in the study, as this would indicate potential additional value of HMPs compared to more traditional exercise contexts.

Specifically, consideration should be given to how each of the ingredients is expected – individually or interactively – to influence modifiable psychological, physiological, neurobiological, and/or social processes and how influencing these processes is thought to affect the outcome(s) of interest. Particularly relevant to HMPs and mental health may be processes that support healthy self-regulation, a coherent sense of self, and/or constructive communication. A sense of one's place in the universe, including spiritual dimensions, may also be relevant. Other factors to consider are the role of context, facilitators of and barriers to intervention implementation, and potential adverse events or unintended consequences (Grant et al., 2018).

***Explanation***

**2b.** Park et al. (2014) noted that explicit justification for the choice of control condition in yoga intervention trials is often missing. Such justification is also not very clearly present in existing reporting checklists. However, comparison conditions can fulfill different functions depending on the type of condition chosen, and it is important that the choice is linked to the research question and objective (Kinser & Robins, 2013). Overall study intentions could involve a) establishing efficacy/effectiveness compared to no treatment, usual care, or wait list controls; b) establishing efficacy/effectiveness compared to other physical activity modalities (proven to be effective); c) establishing



efficacy/effectiveness compared to existing or novel non-physical activity-based treatments; and/or d) determining underlying mechanisms (Kinser & Robins, 2013).

Studies involving no treatment, usual care, or wait list controls can be useful in early stages to establish general efficacy/effectiveness (Kinser & Robins, 2013), but terms such as ‘usual care’ and ‘treatment as usual’ need to be explained in detail rather than merely be provided as labels. In studies involving other physical activity modalities, control conditions should match the HMP condition as much as possible in terms of time, teacher attention, expectations, social interactions etc. For MENPA, studies seeking to establish efficacy/effectiveness compared to other physical activity/exercise modalities are particularly welcomed. When aiming to determine underlying mechanisms, it is important to embed the study in a theoretically or empirically-based hypothetical framework that acknowledges plausible alternative hypotheses, with the control conditions chosen to actively control for the alternative explanations of the possible effects (Kinser & Robins, 2013). In the case of HMPs, these frameworks must address both possible mechanisms of physical activity affecting mental health-related processes and outcomes, and possible mechanisms of any holistic components affecting mental health-related processes and outcomes.

### **Participants**

3 Describe the specific population(s) included in the study and the reasons for selecting this/these specific population(s)

3a. Describe any inclusion or exclusion criteria for participant selection, with reasons

3b. Describe the population serving as the comparison group

### ***Explanation***

Rationale for the selected population and description of the participants in each of the intervention and comparison groups provide important context for the interpretation and generalisability of the findings (Hoffmann et al., 2014; Moonaz, Nault, Cramer, & Ward,

2021a). History of HMP participation may be a particularly relevant issue to consider as part of inclusion or exclusion criteria.

### **Teacher/provider expertise**

4 Describe the expertise, background, and training of those providing the intervention

- 4a. Describe the qualifications of the teacher(s). This can include specific HMP teacher training/accreditation, as well as any relevant professional training (e.g., psychologist, counsellor). Extent (duration and range) of teaching experience, and style/lineage if applicable, are also important to include.
- 4b. Describe how the teacher(s) was/were trained in delivering the protocol, if applicable
- 4c. Where relevant, describe the teacher's philosophical orientation

### ***Explanation***

Teacher training in HMPs can vary greatly in scope and depth. Providing guidance in practices that involve purposeful inclusion of both movement and holistic components requires skills in creating an environment that is not only physically but also mentally and emotionally safe, as well as challenging at the appropriate level. In addition, particular populations may require specific knowledge and skills. It is important that the teachers' expertise matches both the physical and holistic challenges involved in the intervention. HMP teachers may also vary in their underlying philosophical and pedagogical beliefs (e.g., Reeves, Harrell-Williams, Khalsa, Mueller, & Groessl, 2022), or commitment to their own practice (McCown, Reibel, & Micozzi, 2010). It is worth considering these characteristics where they are likely to affect outcome variables. Links to specific teacher training organisations may be included.

### **Overall Schedule and Dose**

5 Describe the number of times the intervention was planned to be delivered and over what period of time, including the number of sessions, their schedule, and duration

- 5a. Describe the duration of each session (in minutes).
- 5b. Describe the duration of the intervention (e.g., over 5 weeks).
- 5c. Describe the frequency of sessions (e.g., twice weekly).
- 5d. Describe the total number of sessions.
- 5e. Report whether and to what extent the HMP was available to participants during the follow-up period (if relevant) (e.g., through home practice support)

### ***Explanation***

Information about intervention dose is essential for determining any dose-response relationship. If the HMP is (made) available in some form during a follow-up period, the dose should be reported. This item refers to the planned intervention schedule and dose. Items 12 (participant adherence and compliance) and 15 (fidelity) refer to the actual dose received by participants.

### **Content (1) - Activities**

- 6 Provide a description of the HMP activities and procedures used in the intervention.
  - 6a. Describe the type(s) of physical activity or physical exercises in the intervention, with indications of intensity, duration, frequency
  - 6b. Describe each of the holistic ingredients of the intervention – psychophysiological (e.g., breathing), mental, emotional, cognitive, social, and/or spiritual, and the form in which these are included (e.g., specific separate activities interspersed with movement; invitations or guidance for particular mental engagement during movement)
  - 6c. Describe the sequencing and duration of the different activities within the session (e.g., 30 min yoga postures followed by 10 min seated meditation)
  - 6d. If multiple ones exist, describe the style/lineage of the HMP practice delivered

- 6e. If components of the typical holistic delivery of the HMP have deliberately been excluded from or adapted for the intervention to suit the study population or context, this should be indicated

***Explanation***

As HMPs are movement practices, rendering them forms of physical activity (Caspersen, Powell, & Christensen, 1985), the potential contribution of the physical aspects of the HMP intervention needs to be discernible to enable comparison with other forms of physical activity. It is, therefore, essential that the physical ingredients are clearly described and differentiated as much as possible from the holistic ingredients. Descriptions in the text may be succinct, with more detailed and extensive information included in supplementary materials. In addition to narrative description, visual aids in the form of graphics, pictures, or videos may be useful.

**6a.** Physical activity parameters, such as type and dose, need to be described. Descriptions of type could involve various classifications. Typical exercise classifications are related to components of physical fitness, including aerobic, muscular strength and endurance, flexibility, and neuromotor (Garber et al., 2011). They might describe different types of movement, such as walking, stepping, holding postures; qualities of movement like slow, medium, fast; and/or motor skills involved such as balance, coordination, gait, agility. They might also refer to the nature of the engagement, such as structured, guided, and free movement (Vergeer et al., 2021).

Descriptions of dose are important to determine physical activity exposure, and need to refer to such aspects as intensity, frequency, and duration. Intensity refers to rate of metabolic energy demand during an activity (Garber et al., 2011; MacIntosh, Murias, Keir, & Weir, 2021) and can be expressed in specific absolute or relative physiological parameters (e.g., oxygen uptake in litres per minute, caloric expenditure per minute, heart rate per

minute, heart rate reserve), or in approximate terms (e.g., low, moderate, vigorous, perceived exertion). Intensity needs to be considered in relation to the population studied, however, as it is influenced by individual difference factors such as age, fitness, sex, and health status (Garber et al., 2011).

Additionally, links with physical fitness outcomes might be described. Changes in fitness may not necessarily mediate changes in mental health outcomes but may indicate a level of engagement that changes related parameters, and may help to compare the characteristics of the HMP with other forms of physical activity (e.g., aerobic exercise, strength training, flexibility). Reports of changes in perceived fitness parameters may also be important as a mechanism for effects on physical self-perceptions, body image and self-esteem. As research on mechanisms such as enhanced neuroplasticity, reduced inflammation, and other neurophysiological processes, emerges in the relationship between physical activity and mental health and well-being outcomes (Kandola, Ashdown-Franks, Hendrikse, Sabiston, & Stubbs, 2019), information about the acute and chronic effects of HMPs on these mechanisms and outcomes will add to our understanding.

Where possible, the description of physical components should be backed up with references to studies including measures of relevant physiological processes or outcomes of the HMP. If non-HMP forms of physical activity are included in the intervention, they need to be reported in similar detail.

**6b.** Examples of possible holistic ingredients include activities aimed at psychophysiological regulation or awareness (e.g., breathing exercises), visualizations, concentration exercises, explanations of holistic philosophy, sharing of experiences with others. For all of these, both content and dose (e.g., minutes spent) is important. While “mindfulness” may be a common ingredient in HMPs, it is worth noting that this is a complex and multifaceted concept that can have multiple interpretations, and that it is

recommended that researchers are explicit about exactly what mental states and processes are being investigated (see Van Dam et al., 2018). This is particularly relevant to HMPs, as different HMPs (or different styles of one HMP) may include different aspects of mindfulness, and it is important to be able to distinguish differences in underlying mental processes or states.

Though they can be included as separate activities (the “what” of delivery), holistic components may often be more evident in the “how” of delivery. They are covered under item 7, but it is acknowledged that descriptions of “what” and “how” may not necessarily be separable.

**6c.** Duration of each of the activities in a session contributes to the understanding of dose of both the physical and holistic/non-physical components. Sequencing may be important with different activities building on previous ones.

**6d.** Some HMPs have developed into a range of styles or lineages, each with their own emphases. Stating the lineage allows for easier identification of interventions/studies based on a certain style or lineage as well as easier comparisons between styles or lineages.

**6e.** If any ingredients that would be part of the HMP according to its philosophy have been left out or adapted in order to suit the population or circumstances of the intervention, describe these adaptations and the reasons for them.

## **Content (2) – Delivery and Guidance**

7 Describe how the holistic/non-physical content of the session was delivered

7a. Describe the content of any guidance provided for attentional focus, attitude, or mental or emotional engagement, or any explanations offered for experiences participants might have

7b. Describe any use of music – the type of music and whether used as background or as integral part of the sessions

7c. Describe any guided social interactions between participants, whether in the form of movement or verbal

### ***Explanation***

**7a.** HMPs may include guidance, invitations or instructions for particular mental engagement during the sessions or during specific activities. Examples include guidance to observe internal states (physical, mental, emotional, energetic – including instructions/invitations to do so with a certain attitude, for example, curiosity, non-judgment, acceptance, as in mindfulness training) or instructions to try to influence internal states (e.g., through guided imagery).

**7b.** Any use of music should be reported. Music may be deliberately used in HMPs, either in the form of background music to create a certain ambiance, or in a more integrated fashion to facilitate certain movement-based experiences. The type of music, its intended function, and reasons for its use need to be described.

**7c.** Guided social interactions, whether in the form of movement-based activities or verbal sharing, can be deliberate components of HMPs. Such interactions can be vital for the experiences participants have and should be described, along with their intended function.

### **Mode of Delivery**

8 Describe how the sessions were delivered

8a. Describe the modes of delivery of the intervention (e.g., face-to-face class, video/audio, pre-recorded or live online), and any reasons for this choice of delivery mode

8b. Describe whether the intervention was delivered in groups or individually

8c. Describe the student/teacher ratio and spaciousness of the class

### ***Explanation***

Although most HMPs probably started out as in person, face-to-face group-based delivery, technological and social developments (e.g., COVID-19) have led to multiple possible delivery modes of HMP practices. These include face-to-face group classes of varying sizes, individual sessions or individualised instructions, recorded audio/video instructions delivered online or in a predefined group space, and live online classes followed by participants at home, with or without facilitated online participant interaction. Reasons – pragmatic or otherwise – for the choice of delivery mode need to be included.

In face-to-face, group-based delivery, class size and crowdedness are important parameters to report as they can have varying psychological implications for participant experiences.

### **Location/ environment**

9 Describe the environment where the intervention occurred

- 9a. Describe the physical environment where the HMP intervention occurred (e.g., indoors, outdoors), including any aesthetic features
- 9b. Describe the sociocultural setting where the HMP intervention occurred (e.g., holistic healing centre; community centre; dedicated yoga studio; research institute; church hall; home; fitness centre; institute or centre associated with a particular holistic philosophy)
- 9c. Where relevant, indicate whether the intervention involved participation in existing classes and/or involved mixing with non-study participants

### ***Explanation***

Physical and sociocultural environments of HMPs vary (Vergeer & Klepac-Pogrmilovic, 2021). The sociocultural setting will provide a certain ambiance that may facilitate or hinder the holistic experience of the participants. The effect of the setting may be



different for different populations or types of participants (e.g., a church hall may be inspiring to some while off-putting to others). Physical features of the environment are often related to the setting (e.g., mirrored walls in a fitness centre) and may be particularly relevant to the mental/emotional engagement of participants (e.g., outside noise levels, being outdoors in nature, the presence of spiritual or religious symbols).

### **Home practice**

10 If home practice was part of the intervention, describe what, why, when, and how

10a. Describe any recommendations (e.g. dose) and material or social support provided to facilitate home practice (if any)

10b. Describe if and how adherence to home practice was measured

10c. Describe the duration and frequency of home practice (if any)

### ***Explanation***

If home practice was recommended or planned as part of the intervention, details need to be provided, including guidelines for frequency and duration, any supporting materials provided (e.g., videos, audio instructions, equipment), any motivational support strategies used, and eventual adherence (see Moonaz et al., 2021a).

### **Materials**

11 Describe any physical or informational materials used in the intervention.

### ***Explanation***

Any physical or informational materials used in the intervention need to be described, including those provided to participants or used in intervention delivery or in training of intervention providers. In the interests of transparent science, provide information on where the materials can be accessed, such as online appendix or URL (Hoffmann et al., 2014).

### **Participant Adherence and Compliance**

12 If adherence and/or compliance to the intervention was assessed, describe how and by whom, and what (if any) strategies were used to maintain or improve adherence/compliance

12a. Describe if and how class/session attendance was measured

12b. Describe any strategies used to encourage practice adherence, both during the main intervention and any follow-up

12c. Describe if and how compliance with session ingredients was measured

12d. Describe any strategies used to encourage compliance with session ingredients

### ***Explanation***

Monitoring adherence is important for establishing the actual, rather than planned, intervention dose (Moonaz et al., 2021a). In addition, intervention adherence may reflect participant satisfaction and program acceptability. How to achieve sustained involvement is a key challenge in the physical activity field, and a range of strategies (e.g., Michie et al., 2011) might be used to encourage adherence, both during the main intervention and during any follow-up.

In addition to adherence in the form of attending the sessions, it may also be of relevance to assess compliance – the extent to which participants engage with the session ingredients. This may be challenging to do but is of particular relevance to HMPs, given that effects on mental health may in part depend on engagement with the non-physical elements of the practice. We would therefore encourage researchers to include assessments of compliance.

### **Tailoring**

13 If the intervention was personalized or adapted, describe what, why, when, and how.

### ***Explanation***

When interventions are tailored, not all participants receive an identical intervention (Hoffmann et al., 2014). This could happen for various reasons, both planned and unplanned.

Details regarding rationale, timing, and changes in content for any such tailoring need to be described.

### **Protocol Modifications**

14 If the intervention protocol was modified during the course of the study, describe the changes, the reasons for the changes and when and how they were made

#### ***Explanation***

Any changes to the original content and/ or delivery of the intervention should be clearly described, along with the timing of and reasons for the changes (Moonaz et al., 2021a). Reasons might be clinical, logistical, or research-related (Moonaz et al., 2021a).

### **Fidelity**

15 Describe the extent to which the intervention was delivered as planned.

15a. Describe whether the programme proceeded as planned

15b. Describe if and how teacher fidelity to the pre-defined protocol was assessed

15c. Describe any differences between the proposed programme and actual programme delivery, and the possible reasons for these differences

#### ***Explanation***

Fidelity refers to the extent to which the pre-defined intervention is reproduced. Many factors could interfere with interventions being delivered as planned.

**15a.** If there were no protocol deviations, this should be stated.

**15b.** Monitoring of teacher fidelity may include independent observation, self-report, or audio/visual recording of a session for later review. Measurement of fidelity may be quantitative (e.g., a checklist) and/or qualitative (e.g., written notes) (Moonaz et al., 2021a).

**15c.** If there were differences between the intended and actual delivery, describe these differences and the reasons for them. Reasons might be related to the teacher (e.g., intentional or unintentional non-adherence to the protocol), participants (e.g., unwillingness or inability

of participants to follow the programme), or logistics (e.g., unavailability of treatment facilities or transport) (Moonaz et al., 2021a).

### **Discussion and Conclusion**

In this paper we have provided guidelines in the form of a checklist and explanations for the reporting of interventions involving HMPs, such as, but not limited to, yoga, tai chi, qigong, and conscious dance. Like TIDieR, CERT, and CLARIFY, the HMP-REaDER checklist we developed is intended as an extension of CONSORT item 5—description of the intervention—and the guidelines we propose can best be used in conjunction with CONSORT-NPT (Boutron et al., 2017) or CONSORT-SPI (Grant et al., 2018). The background and rationale sections of the HMP-REaDER guidelines would be relevant in the reporting of other study designs (along with the information on physical activity and fitness in section 6).

In order to better understand if and how the physical activity component of the HMP influences psychophysiological, behavioural, psycho-social and participant reported outcomes and indicators of mental health and well-being, it is highly recommended that future studies include measurements of physical activity intensity and physical fitness. Measures of physical activity behaviour are also of interest, in both formal sessions and daily living. For example, if HMP sessions lead to increases in daily walking it would be useful to know this to unpick the link between HMPs and mental health.

We conclude by noting that we do not think experimental trials are the only valid way of building an evidence-based body of knowledge on HMPs, and we concur with some authors (e.g., Wayne & Kaptchuk, 2008a, 2008b) that not all aspects of HMPs can be forced into experimental trials and that additional methodologies are needed to build a comprehensive body of knowledge. However, we believe that the presented guidelines can

play a role in maximizing the knowledge that *can* be gained through experimental approaches (Vergeer & Biddle, 2021).

### **Declaration of interest**

Given their roles as an Editor Hallgren M., Editorial Board member Vergeer I. and Founding Editors Taylor A., and Biddle S.H. had no involvement in the peer-review of this article and had no access to information regarding its peer-review.

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**Table 1: Holistic Movement Practices REsearch DEsign and Reporting (HMP-REaDER)**

checklist for MENPA

Category	Description and items
<b>Background</b>	<p><b>1 Provide a description of the background of the HMP, including its physical and holistic ingredients and philosophy</b></p> <p>1a. *Describe the physical nature of the practice, in particular the type(s) of physical activity with an indication of its demands on physical fitness parameters such as cardiorespiratory, muscular, flexibility, and neuromotor fitness</p> <p>1b. *Describe the holistic ingredients of the practice, i.e., those that are additional to the physical and may be of a mental, emotional, psychophysiological, cognitive, social, and/or spiritual nature</p> <p>1c. Describe the holistic philosophy (this may be brief, with reference to more extensive accounts) and how this is reflected in the teaching</p>
<b>Rationale &amp; Theory</b>	<p><b>2 Describe any rationale, theory, or goal of the elements essential to the intervention</b></p> <p>2a. * Describe the expected relationship between active ingredient(s) and mental health processes/outcome(s), with hypothesized mechanisms where possible, differentiating as much as possible between physical and holistic ingredients</p>

Category	Description and items
	<p>i. Where possible, include theoretical frameworks about the mechanisms of physical activity affecting mental health processes and outcomes</p> <p>ii. Where possible, include theoretical frameworks about the mechanisms of the holistic component(s) affecting mental health processes and outcomes</p> <p>2b. * Describe the rationale for the choice of comparison group or condition, making a link with the research question and study objective(s)</p>
<b>Participants</b>	<p><b>3 Describe the specific population(s) included in the study and the reasons for selecting this/these specific population(s)</b></p> <p>3a. * Describe any inclusion or exclusion criteria for participant selection, with reasons</p> <p>3b. * Describe the population serving as the comparison group</p>
<b>Teacher/ Provider Expertise</b>	<p><b>4 Describe the expertise, background, and training of those providing the intervention</b></p> <p>4a. * Describe the qualifications of the teacher(s). This can include specific HMP teacher training/accreditation, as well as any relevant professional training (e.g., psychologist, counsellor). Extent (duration and range) of teaching experience, and style/lineage if applicable, are also important to include.</p> <p>4b. Describe how the teacher(s) was/were trained in delivering the protocol, if applicable</p>

Category	Description and items
	4c. Where relevant, describe the teacher's philosophical orientation
<b>Overall Schedule and Dose</b>	<p><b>5 Describe the number of times the intervention was planned to be delivered and over what period of time including the number of sessions, their schedule, and duration</b></p> <p>5a. * Describe the duration of each session (in minutes)</p> <p>5b. * Describe the duration of the intervention (e.g., over 5 weeks)</p> <p>5c. * Describe the frequency of sessions (e.g., twice weekly)</p> <p>5d. * Describe the total number of sessions</p> <p>5e. Report whether and to what extent the HMP was available to participants during the follow-up period (if relevant) (e.g., through home practice support)</p>
<b>Content (1) - Activities</b>	<p><b>6 Provide a description of the HMP activities and procedures used in the intervention.</b></p> <p>6a. * Describe the type(s) of physical activity or physical exercises in the intervention, with indications of intensity, duration, frequency</p> <p>6b. * Describe each of the holistic ingredients of the intervention – psychophysiological (e.g., breathing), mental, emotional, cognitive, social, and/or spiritual, and the form in which these are included (e.g., specific separate activities interspersed with</p>

Category	Description and items
	<p>movement; invitations or guidance for particular mental engagement during movement)</p> <p>6c. Describe the sequencing and duration of the different activities within the session (e.g., 30 min yoga postures followed by 10 min seated meditation).</p> <p>6d. If multiple ones exist, describe the style/lineage of the HMP practice delivered</p> <p>6e. If components of the typical holistic delivery of the HMP have deliberately been excluded from or adapted for the intervention to suit the study population or context, this should be indicated</p>
<p><b>Content (2) – Delivery and Guidance</b></p>	<p><b>7 Describe how the holistic/non-physical content of the session was delivered</b></p> <p>7a. * Describe the content of any guidance provided for attentional focus, attitude, or mental or emotional engagement, or any explanations offered for experiences participants might have</p> <p>7b. Describe any use of music – the type of music and whether used as background or as integral part of the sessions</p> <p>7c. Describe any guided social interactions between participants, whether in the form of movement or verbal</p>
<p><b>Mode of Delivery</b></p>	<p><b>8 Describe how the sessions were delivered</b></p>

Category	Description and items
	<p>8a. * Describe the modes of delivery of the intervention (e.g., face-to-face class, video/audio, pre-recorded or live online), and any reasons for this choice of delivery mode</p> <p>8b. * Describe whether the intervention was delivered in groups or individually</p> <p>8c. Describe the student/teacher ratio and spaciousness of the class</p>
<p><b>Location/ Environment</b></p>	<p><b>9 Describe the environment where the intervention occurred</b></p> <p>9a. Describe the physical environment where the HMP intervention occurred (e.g., indoors, outdoors), including any aesthetic features</p> <p>9b. Describe the sociocultural setting where the HMP intervention occurred (e.g., holistic healing centre; community centre; dedicated yoga studio; research institute; church hall; home; fitness centre; institute or centre associated with a particular holistic philosophy)</p> <p>9c. Where relevant, indicate whether the intervention involved participation in existing classes and/or involved mixing with non-study participants</p>
<p><b>Home Practice</b></p>	<p><b>10 If home practice was part of the intervention, describe what, why, when, and how</b></p>

Category	Description and items
	<p>10a. Describe any recommendations (e.g. dose) and material or social support provided to facilitate home practice (if any)</p> <p>10b. Describe if and how adherence to home practice was measured</p> <p>10c. Describe the duration and frequency of home practice (if any)</p>
<b>Materials</b>	<b>11 Describe any physical or informational materials used in the intervention.</b>
<b>Participant Adherence and Compliance</b>	<p><b>12 If adherence and/or compliance to the intervention was assessed, describe how and by whom, and what (if any) strategies were used to maintain or improve adherence/compliance</b></p> <p>12a. * Describe if and how class/session attendance was measured</p> <p>12b. Describe any strategies used to encourage practice adherence, both during the main intervention and any follow-up</p> <p>12c. Describe if and how compliance with session ingredients was measured</p> <p>12d. Describe any strategies used to encourage compliance with session ingredients</p>
<b>Tailoring</b>	<b>13 If the intervention was personalized or adapted, describe what, why, when, and how.</b>

Category	Description and items
<b>Modifications</b>	<b>14 If the intervention protocol was modified during the course of the study, describe the changes, the reasons for the changes and when and how they were made</b>
<b>Fidelity</b>	<p><b>15 Describe the extent to which the intervention was delivered as planned.</b></p> <p>15a. * Describe whether the programme proceeded as planned</p> <p>15b. Describe if and how teacher fidelity to the pre-defined protocol was assessed</p> <p>15c. * Describe any differences between the proposed programme and actual programme delivery, and the possible reasons for these differences</p>

- \* Though we encourage authors to consider all the listed items, attention to the asterisked items is a minimal expectation.