



## Study Protocol

# Development and Content Validation of a Questionnaire on the Perception of PPE Usage in Response to COVID-19 for Filipino Physical Therapists: a study protocol

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Article Received: October 20, 2021

Article Accepted: March 17, 2022

Article Published: August 15, 2022

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## Abstract

**Background:** The COVID-19 pandemic has led to innumerable challenges in the practice of physical therapy (PT) in both local and global settings. Healthcare settings often use Personal Protective Equipment (PPE) to prevent contamination. Despite its benefits, compliance is challenged by issues such as discomfort, availability, accessibility, and individual perception. **Objectives:** Considering the contrasting roles and nature of healthcare practitioners' work and the differences in the demands of PPE usage, this study aims to develop a profession-specific questionnaire on the perceptions of physical therapists on PPE usage in response to the COVID-19 pandemic with good face and content validity. **Methods:** The study comprises Phase 1 for questionnaire development and Phase 2 for questionnaire validation. Five experts recruited using purposive sampling participated in three rounds of the validation process. Each expert evaluated the face and content validity through Google Forms. Consequently, an expert panel evaluation to reach a consensus on the final items. Google sheets were utilized for analysis. **Expected Results:** The final questionnaire will have 35 items covering the Health Belief Theory domains. All items will receive FVI (overall agreement scores), I-CVI, S-CVI/Ave, and S-CVI/UA scores that meet the cut-off. The final questionnaire will be useful in evaluating physical therapists' perceptions of using PPE due to COVID-19 and may also be helpful to organizations, policymakers, and other entities in their decision-making for PPE protocols, guidelines, and implementation. Future researchers can use this study to conduct a pilot study that assesses other psychometric properties of the tool.

**Key Words:** COVID-19, personal protective equipment, questionnaire, physical therapists, perception

## INTRODUCTION

COVID-19, caused by SARS coronavirus 2 (SARS-CoV-2), first emerged in December 2019. The viral infection is highly contagious, lethal, and spread by respiratory secretions that are viable on surfaces for about eight hours to one day.<sup>1</sup> As per the Department of Health (DOH), as of February 2022, there are now over two million confirmed cases nationwide, with more than 1,150,000 cases reported in the National Capital Region.<sup>2</sup> As the infection is transmissible, the DOH adopted health recommendations, and the Inter-agency Task Force (IATF) implemented community quarantine guidelines to reduce transmission. These restrictions pose challenges

for healthcare workers, including physical therapists, to continue providing services.<sup>3</sup>

Despite the pandemic, physical therapy (PT) remains essential. World Physiotherapy (WCPT) emphasizes that physical therapists (PTs) must encourage and support patients to continue recovery despite restrictions in service delivery.<sup>4</sup> Physiotherapists are currently tasked with offering the highest level of patient care while educating them about personal hygiene, aseptic procedures, and other COVID-19 safety measures.<sup>5</sup> As the PT practice usually entails direct contact, rehabilitation service providers must adapt to social distancing, personal security

measures, and public health constraints.<sup>5</sup> Such measures include using Personal Protective Equipment (PPE), that is, wearing protective suits, helmets, face shields, goggles, face masks, and breathing devices in healthcare settings to block contamination from blood, body fluids, or respiratory secretions.<sup>6</sup> With the pandemic, long-term mandatory use of PPE for PTs is highly likely, wherein compliance is correlated to individual behaviors and perceptions towards PPE.

Currently, there are limited validated questionnaires to assess Filipino PTs' perceptions of PPE usage in response to COVID-19. One study on PPE utilization used a questionnaire to determine the perceptions of different healthcare workers regarding the barriers in infection control practice and knowledge on using PPE.<sup>7</sup> However, the study did not differentiate between different health professionals. The results were inconclusive and did not apply to all health workers or their diverse practices, including PTs. Moreover, despite the benefits of PPE, compliance with its use is challenged by issues such as discomfort, availability, accessibility, and individual perception. Therefore, there is a need to develop a profession-specific questionnaire, considering the contrasting roles and nature of healthcare practitioners' work and the differences in the demands of PPE usage. A profession-specific questionnaire would limit the scope of the study and avoid overgeneralizing the results.

It is essential to understand the PTs' attitudes, as compliance with using PPE is heavily correlated with their perceptions. Thus, the questionnaire may aid in identifying factors that influence compliance and may enable concerned parties to understand the predicaments of Filipino PTs using PPE. Furthermore, it may help organizations, policymakers, and other entities make better informed decisions that can cater to the needs of Filipino PTs in implementing protocols and setting guidelines for utilizing PPE.

Behavioral theories such as the Health Belief Theory may explain such perceptions as it determines health promotion and disease prevention in public health settings.<sup>8,9</sup> The theory suggests that factors such as beliefs in being at risk (perceived susceptibility), the seriousness of

risk (perceived severity), presence of a means to reduce disease occurrence or seriousness (perceived benefits), higher costs than action benefits (perceived barriers), the stimulus to the decision-making process to accept a recommended health action (cues to action), and the level of a person's confidence in their ability towards successful performance behavior (self-efficacy) will impact the preventive behavior and involvement of individuals in prevention programs.<sup>8</sup> However, as the domains 'Self-efficacy' and 'Cues to Action' are not yet systematically evaluated, the self-efficacy domain is rarely included in HBM studies.<sup>9</sup>

This study aims to develop a profession-specific (PT) questionnaire on the perception of PPE usage in response to COVID-19 and to determine its face and content validity indices.

## METHODS

This study comprises two phases. Phase 1 is for questionnaire development, and Phase 2 is for questionnaire validation. Following the Health Belief Theory, researchers incorporated the domains of Perceived Susceptibility, Perceived Severity, Perceived Benefits, and Perceived Barriers into the tool. On the other hand, the researchers have decided to use purposive sampling to recruit five experts to participate in the validation process. Furthermore, the researchers have chosen the Modified Delphi Technique for use during the tool development and validation process.

**Ethical Consideration.** This study was reviewed and approved by the Ethics Review Committee of the University of Santo Tomas College of Rehabilitation Sciences (UST-CRS). This study adhered to the Data Privacy Act of 2012 and the Anti-Cybercrime Law. In addition, the researchers strictly followed the inclusion and exclusion criteria and implemented countermeasures to limit the acquisition of personal information. The researchers will obtain informed consent from the panelists and keep all the data confidential.

**Study Design.** This study followed a psychometric research design on tool development and validation using the Modified Delphi Technique.

**Participants.** This study employed purposive sampling for the online recruitment process of selecting expert participants. To ensure the eligibility of the expert participants, the researchers used the following criteria: (a) a licensed Filipino physical therapist who is practicing during the COVID-19 pandemic or has practiced in previous pandemics/epidemics; (b) is working in hospitals, homes, or communities within Metro Manila; and (c) with at least two years of clinical PT practice. Those who have participated in similar studies within the pandemic period or are academicians or researchers will be excluded. It is recommended that there must be at least three experts, while it is reported that ten experts would increase disagreement.<sup>10</sup> For this study, five experts participated as panelists, and one expert will participate as the facilitator for the expert panel evaluation.

**Materials and Methods.** This study comprised two phases. Phase 1 will focus on questionnaire development, followed by questionnaire validation in Phase 2.

**Phase 1: Development of a Questionnaire.** A comprehensive literature review was conducted using Informit, Google Scholar, PubMed, Science Direct, and Herdin Plus. The year limiters '2019-2021', '2003', and '2014-2016' were used to seek results encompassing the COVID-19 pandemic as well as previous epidemics over the last two decades. Wildcards and Boolean connectors "OR" and "AND" were also utilized. Related studies underwent appraisal using critical appraisal tools and checklists from The Centre for Evidence-Based Medicine (CEBM), Center for Evidence-Based Management (CEBMA), and Critical Appraisal Skills Programme (CASP). The results from the literature review were combined and used as bases to develop an initial questionnaire consistent with the Health Belief Model's (HBM) domains.

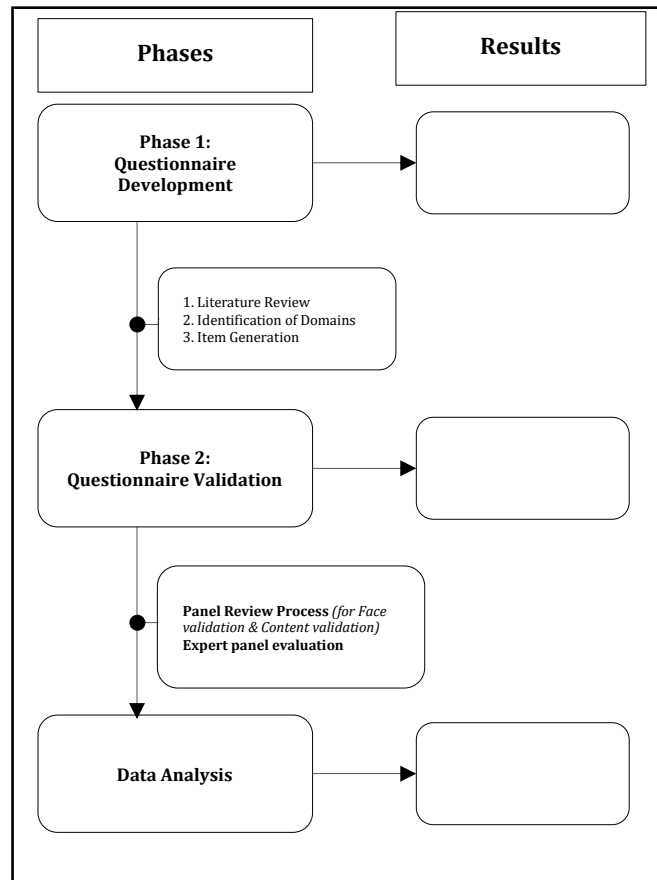


Figure 1. Methodology Framework

Following the Health Belief Theory, the researchers adopted the domains Perceived Susceptibility, Perceived Severity, Perceived Benefits, and Perceived Barriers into the tool. These domains reflected the concept, behavior, and attributes that are the main target of the study, allowing specific domain boundaries and straightforward processing of item generation and content validation.<sup>11</sup> The researchers also included the items for sociodemographic background and general knowledge of COVID-19 in the tool.

Guidelines suggest that research questions are already answered with 25 or fewer items wherein there must be at least five questions for each domain for the final questionnaire.<sup>12</sup> The researchers will ensure that each item follows correct formatting and appropriate wording.<sup>12,13</sup> For the initial questionnaire, each domain will comprise five items derived from the literature review and researchers' input and ten items for the sections on sociodemographic information and general knowledge.

**Phase 2: Validation of Questionnaire.** A Delphi survey usually consists of two or more rounds to obtain a consensus among panelists, chosen for their expertise in the subject matter. The questionnaire items are topic-specific statements created by either the panelists or the researchers. The panelists will assess the items and will be presented with the results of each rating round before the next round. The researchers will use a modified Delphi method in this study, wherein an initial questionnaire will be provided to the panelists before the commencement of the panel review process to improve the initial round response rate and set the foundation for the items based on similar studies.<sup>14</sup>

Panelists will be assigned to review, select, and improve the items throughout the panel review process using Google Forms.<sup>15</sup> The five panelists will participate in the validation process, consisting of three rounds, coursed through emails and online surveys, followed by an expert panel evaluation. After each round, the researchers will retain, remove, or revise the questionnaire items based on their Face Validity Index (FVI) and Content Validity Index (CVI) scores and the panelists' comments and

suggestions. New items will be added as deemed necessary by the panelists' feedback.

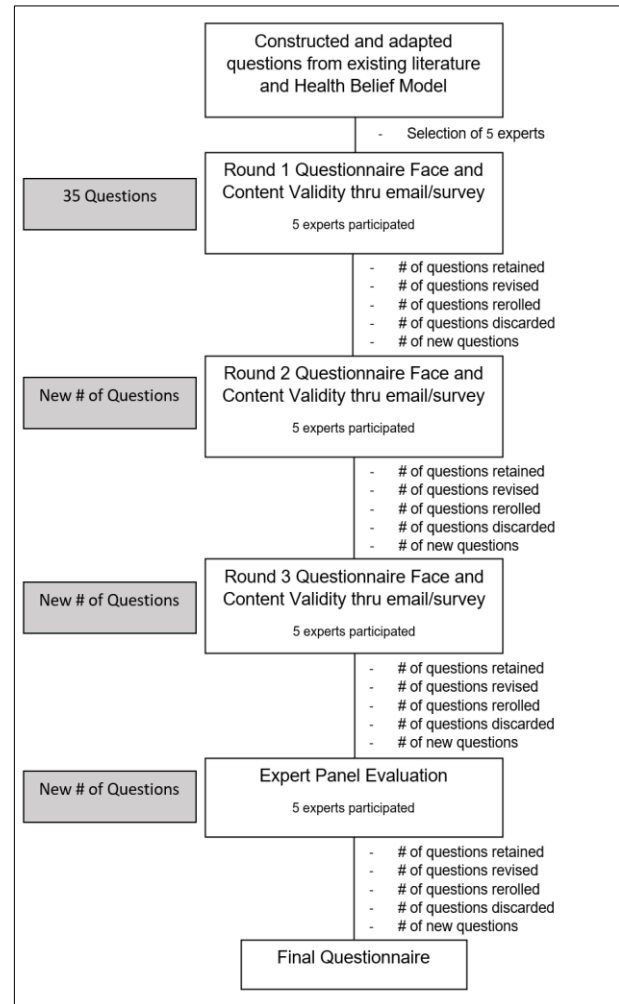


Figure 2. Modified Delphi Process<sup>16</sup>

Face validity is the ability of an instrument to measure what it appears to measure.<sup>17</sup> For this study, the panelists will be asked to measure the questionnaire's readability, style, formatting, and clarity every round using a Face Validity Form. Following the criteria provided using a Yes-or-No dichotomous scale, each item will be rated. Overall agreement scores will also be computed. The criteria will be based on each item's applicability based on grammar, clarity, ambiguity, spelling, sentence construction, font size and space, legibility, adequacy of instructions, formatting, appropriateness of difficulty, and reasonableness.

Content validity measures the degree to which a tool's content can accurately represent a specific construct. The researchers will utilize the CVI

with a five-point Likert scale adapted from Davis's four-point Likert scale to increase the stability of responses.<sup>18</sup> The scale will rate each item based on its relevance, with five being highly relevant and one being not relevant. The researchers will get the scale-level CVI scores using both the universal agreement method (S-CVI/UA) and the average method (S-CVI/Ave) and item-level CVI score (I-CVI).<sup>19</sup> The clarity of each item will also be graded using a dichotomous scale of "Clear" and "Not clear."

The same experts will participate in an expert panel evaluation to discuss their insights and make a consensus decision for the items that have not reached an agreement after three rounds. The participants will be invited via email and be briefed about the conference proceedings accordingly. The invited facilitator will moderate the session held via Google Meet — the chosen platform for security and privacy measures. The expert panel evaluation will follow the course in which the contested items will first be discussed, revised, scored, and then approved. For the session, the student researchers will serve as assistant moderators who will tally the scores and transcribe the data. Once a consensus is reached, the final questionnaire will be developed, including the items that meet the requisite scores.

## **EXPECTED RESULTS**

The final questionnaire will have 35 items covering the Health Belief Theory domains. After the expert panel evaluation, all items will receive a 100% overall agreement score and I-CVI scores of 1. The tool will also achieve S-CVI/Ave and S-CVI/UA scores that meet the cut-off score. The tool will be useful in evaluating PTs' perceptions of using PPE due to COVID-19 and may be helpful to organizations, policymakers, and other entities who want to understand Filipino PTs' perceptions better to aid their decision-making in terms of the PPE protocols, guidelines, and implementation. Future researchers may also use this as a reference to conduct a pilot study that evaluates the other psychometric properties of the tool.

## **Individual Author's Contributions**

All authors contributed equally.

## **Disclosure Statement**

This paper did not receive funding from any organization, institution, or agency.

## **Conflicts of interest**

One of the authors of this paper is part of the journal's editorial board.

## **Supplementary Materials**

[Supplementary Material A. Initial Questionnaire](#)

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