

## ANNEX D.

# MMAPP Domain 1: Depression and Anxiety Scoring Guide

UNICEF | Preprint Version, May 2026

## 1. Introduction

This scoring guide provides step-by-step instructions for calculating MMAPP scores in the field. It covers four score types:

- MMAPP Depression Total Score
- MMAPP Anxiety Total Score
- PHQ-A Equivalent Score (Patient Health Questionnaire for Adolescents)
- PHQ-9 Equivalent Score (Patient Health Questionnaire for Adults)
- GAD-7 Equivalent Score (Generalized Anxiety Disorder scale)

### Automated Scoring and Analysis Tools

Python-based automated scoring scripts for the MMAPP are currently under development. These will streamline data processing and analysis, including identification of population-specific cut-off scores for anxiety and depression and estimation of population level prevalence.

In the meantime, please follow this manual scoring guide. For access to scoring tools, technical assistance, or questions about implementation, contact the UNICEF Child and Adolescent Mental Health Measurement team at [ITY-CAMH-Data@unicef.org](mailto:ITY-CAMH-Data@unicef.org).

## 2. Response Scale and Value Coding

All 25 MMAPP items use the same 4-point frequency response scale. Each response option is assigned a numeric value for scoring:

Numeric Value	Response Label	Meaning
0	Never	The symptom did not occur in the past 2 weeks
1	Sometimes	The symptom occurred occasionally
2	Often	The symptom occurred frequently
3	Always	The symptom occurred nearly every day or constantly

### 3. Complete List of MMAPP Domain 1 (MMAPP-DA) Items

The MMAPP depression and anxiety module contains 25 items (MMAPP01–MMAPP25). All items ask how often the respondent experienced each symptom during the past 2 weeks.

#	Item Name	Item Content
<b>Depression Hallmark Symptoms Items (Items 1–4)</b>		
1	MMAPP01	During the past two weeks, how often have you been feeling very sad or depressed?
2	MMAPP02	During the past two weeks, how often have you felt easily annoyed or irritable at small things?
3	MMAPP03	During the past two weeks, how often have you not enjoyed doing things you used to enjoy, such as <b>playing sports, singing and dancing, or spending time with friends?</b>
4	MMAPP04	During the past two weeks, how often have you felt hopeless about the future?
<b>Anxiety Hallmark Symptoms Items (Items 5–10)</b>		
5	MMAPP05	During the past two weeks, how often have you felt nervous or anxious?
6	MMAPP06	During the past two weeks, how often have you worried you can't do anything right or are doing things poorly?
7	MMAPP07	During the past two weeks, how often have you worried about what others think of you?
8	MMAPP08	During the past two weeks, how often have you worried something bad will happen to you or your family?
9	MMAPP09	During the past two weeks, how often have you worried too much about different things?
10	MMAPP10	During the past two weeks, how often have you felt unable to stop or control your worries?
<b>Extended Symptom Items (Items 11–25)</b>		
11	MMAPP11	During the past two weeks, how often have you not wanted to eat even when food was available, or have you eaten too much?
12	MMAPP12	During the past two weeks, how often have you had problems falling asleep, problems sleeping well, or problems with sleeping too much?
13	MMAPP13	During the past two weeks, how often have you felt that you got tired easily or did not have the energy to do daily activities?

14	<b>MMAPP14</b>	During the past two weeks, how often have you had trouble concentrating on things, such as doing <b>homework, household chores</b> , or other tasks you need to do?
15	<b>MMAPP15</b>	During the past two weeks, how often have you felt lonely?
16	<b>MMAPP16</b>	During the past two weeks, how often have you felt like a failure or like you have let yourself or your family down?
17	<b>MMAPP17</b>	During the past two weeks, how often have you had thoughts that you would rather be dead or thoughts of hurting yourself?
18	<b>MMAPP18</b>	During the past two weeks, how often have others said that you have been moving more slowly than usual?
19	<b>MMAPP19</b>	During the past two weeks, how often have others said that you are restless or that you can't sit still?
20	<b>MMAPP20</b>	During the past two weeks, how often have you felt that it was difficult to breathe?
21	<b>MMAPP21</b>	During the past two weeks, how often have you felt dizzy or faint?
22	<b>MMAPP22</b>	During the past two weeks, how often have you suddenly gotten scared for no reason or without knowing what made you scared?
23	<b>MMAPP23</b>	During the past two weeks, how often have you had difficulty relaxing or difficulty feeling calm?
24	<b>MMAPP24</b>	During the past two weeks, how often have you felt like your heart was pounding or beating too fast?
25	<b>MMAPP25</b>	During the past two weeks, how often have you had headaches or muscle tension?

## 4. MMAPP Depression and Anxiety Total Scores

These are the primary MMAPP scores for programme monitoring and population tracking. They are calculated by summing the raw (0–3) values across the relevant items. No recoding is required.

### 4.1 MMAPP Depression Total Score

Sum the raw scores for all 15 depression items.

Item #	Item Name	Item Content
1	<b>MMAPP01</b>	During the past two weeks, how often have you been feeling very sad or depressed?

2	<b>MMAPP02</b>	During the past two weeks, how often have you felt easily annoyed or irritable at small things?
3	<b>MMAPP03</b>	During the past two weeks, how often have you not enjoyed doing things you used to enjoy, such as <b>playing sports, singing and dancing, or spending time with friends?</b>
4	<b>MMAPP04</b>	During the past two weeks, how often have you felt hopeless about the future?
11	<b>MMAPP11</b>	During the past two weeks, how often have you not wanted to eat even when food was available, or have you eaten too much?
12	<b>MMAPP12</b>	During the past two weeks, how often have you had problems falling asleep, problems sleeping well, or problems with sleeping too much?
13	<b>MMAPP13</b>	During the past two weeks, how often have you felt that you got tired easily or did not have the energy to do daily activities?
14	<b>MMAPP14</b>	During the past two weeks, how often have you had trouble concentrating on things, such as doing <b>homework, household chores,</b> or other tasks you need to do?
15	<b>MMAPP15</b>	During the past two weeks, how often have you felt lonely?
16	<b>MMAPP16</b>	During the past two weeks, how often have you felt like a failure or like you have let yourself or your family down?
17	<b>MMAPP17</b>	During the past two weeks, how often have you had thoughts that you would rather be dead or thoughts of hurting yourself?
18	<b>MMAPP18</b>	During the past two weeks, how often have others said that you have been moving more slowly than usual?
19	<b>MMAPP19</b>	During the past two weeks, how often have others said that you are restless or that you can't sit still?
20	<b>MMAPP20</b>	During the past two weeks, how often have you felt that it was difficult to breathe?
21	<b>MMAPP21</b>	During the past two weeks, how often have you felt dizzy or faint?

Depression Total Score Calculation	
<b>Formula (MMAPP_DEP_SUM)</b>	MMAPP01 + MMAPP02 + MMAPP03 + MMAPP04 + MMAPP11 + MMAPP12 + MMAPP13 + MMAPP14 + MMAPP15 + MMAPP16 + MMAPP17 + MMAPP18 + MMAPP19 + MMAPP20 + MMAPP21
<b>Number of items</b>	15 items
<b>Possible range</b>	0 to 45

<b>Higher score indicates</b>	Greater depression symptom severity
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## 4.2 MMAPP Anxiety Total Score

Sum the raw scores for all 13 anxiety items.

Item #	Item Code	Item Content
5	MMAPP05	During the past two weeks, how often have you felt nervous or anxious?
6	MMAPP06	During the past two weeks, how often have you worried you can't do anything right or are doing things poorly?
7	MMAPP07	During the past two weeks, how often have you worried about what others think of you?
8	MMAPP08	During the past two weeks, how often have you worried something bad will happen to you or your family?
9	MMAPP09	During the past two weeks, how often have you worried too much about different things?
10	MMAPP10	During the past two weeks, how often have you felt unable to stop or control your worries?
19	MMAPP19	During the past two weeks, how often have others said that you are restless or that you can't sit still?
20	MMAPP20	During the past two weeks, how often have you felt that it was difficult to breathe?
21	MMAPP21	During the past two weeks, how often have you felt dizzy or faint?
22	MMAPP22	During the past two weeks, how often have you suddenly gotten scared for no reason or without knowing what made you scared?
23	MMAPP23	During the past two weeks, how often have you had difficulty relaxing or difficulty feeling calm?
24	MMAPP24	During the past two weeks, how often have you felt like your heart was pounding or beating too fast?
25	MMAPP25	During the past two weeks, how often have you had headaches or muscle tension?

Anxiety Total Score Calculation	
<b>Formula (MMAPP_ANX_SUM)</b>	MMAPP05 + MMAPP06 + MMAPP07 + MMAPP08 + MMAPP09 + MMAPP10 + MMAPP19 + MMAPP20 + MMAPP21 + MMAPP22 + MMAPP23 + MMAPP24 + MMAPP25

<b>Number of items</b>	13 items
<b>Possible range</b>	0 to 39
<b>Higher score indicates</b>	Greater anxiety symptom severity

#### Note: Items shared between Depression and Anxiety scores

MMAPP items 19, 20, and 21 appear in both the Depression and Anxiety total score calculations. This reflects the clinical overlap between depression and anxiety symptomatology and is intentional in the MMAPP design.

## 5. Screener Scoring for Two-Stage MMAPP Administration for Large-Scale Population-Based Surveys (e.g., Multiple Indicator Cluster Surveys (MICS))

For large population-based surveys, MMAPP can be administered in two stages in order to reduce the survey administration time. In Stage 1, the 10 hallmark items (MMAPP01–10) are administered to identify whether to continue administration beyond item 10. Respondents who are identified as “symptom present” (scoring 2=Often or 3=Always) for either the depression hallmark symptoms section (MMAPP01-04) or anxiety hallmark symptoms section (MMAPP05-10), then complete the respective follow-up item sets (MMAPP11-21 for depression; MMAPP19-25 for anxiety). If a respondent has at least one hallmark symptom in both depression and anxiety, then the full follow-up section is completed (MMAPP11-25). This section describes the scoring approach for the screener items two-stage administration for MMAPP.

#### “Symptom present” in Hallmark Symptoms Items ≠ Depression or Anxiety Case

The MMAPP Screener items and the screener scores are used to determine whether to administer full MMAPP survey or not for the participant; and **NOT** an indication of depression or anxiety case

### 5.1 Step 1: Recode Items to Binary (0/1) Format

Before calculating screener totals, recode all MMAPP Hallmark Symptoms section items (MMAPP01-MMAPP10) as follows:

Original Response (value)	Recoded Value	Interpretation
Never (0) or Sometimes (1)	0	Symptom absent
Often (2) or Always (3)	1	Symptom present

### 5.2 Step 2 for Depression Hallmark Symptoms Section: Scoring and Symptoms Identification Rule

Sum the recoded values for MMAPP01 through MMAPP04. A respondent is identified as having depression symptoms if any one of the four items is endorsed at Often or Always (recoded sum  $\geq 1$ ).

Depression Hallmark Symptoms Total Calculation	IF	THEN
Sum of recoded items (MMAPP01, MMAPP02, MMAPP03, MMAPP04) = 0 No item rated Often or Always	<b>Symptom absent</b>	⇒ No need to administer MMAPP Expanded Symptoms items for Depression
Sum of recoded items (MMAPP01, MMAPP02, MMAPP03, MMAPP04) ≥ 1 At least one item rated Often or Always	<b>Symptom present</b>	⇒ Administer MMAPP Expanded Symptoms items for Depression: MMAPP10-MMAPP21

### 5.3 Step 2 for Anxiety Hallmark Symptoms Section: Scoring and Symptoms Identification Rule

Sum the recoded values for MMAPP05 through MMAPP10. A respondent is identified as having anxiety symptoms if any one of the six items is endorsed at Often or Always (recoded sum ≥ 1).

Depression Hallmark Symptoms Total Calculation	IF	THEN
Sum of recoded items (MMAPP05, MMAPP06, MMAPP07, MMAPP08, MMAPP09, MMAPP10) = 0 No item rated Often or Always	<b>Symptom absent</b>	⇒ No need to administer MMAPP Expanded Symptoms items for Anxiety
Sum of recoded items (MMAPP05, MMAPP06, MMAPP07, MMAPP08, MMAPP09, MMAPP10) ≥ 1 At least one item rated Often or Always	<b>Symptom present</b>	⇒ Administer MMAPP Expanded Symptoms items for Anxiety: MMAPP19-MMAPP25

## 6. PHQ-A Equivalent Score

The PHQ-A (depression section of the Patient Health Questionnaire for Adolescents)<sup>1</sup> equivalent score can be calculated from MMAPP items when all 15 depression items have been administered. The PHQ-A has 9 items. Some PHQ-A items are derived by taking the highest value across two or more MMAPP items; others map directly.

### 6.1 Item Derivation

PHQ-A Item	Derived From (MMAPP)	How to Derive
<b>Item 1</b>	MMAPP01, MMAPP02, MMAPP04	Take the highest score across these three items
<b>Item 2</b>	MMAPP03	Use MMAPP03 value as is

<sup>1</sup> The depression subsection of the PHQ for adolescents (PHQ-A) was adapted from the adult Patient Health Questionnaire and validated with 403 adolescents aged 13-18 years in the United States. Citation: Johnson JG, Harris ES, Spitzer RL, Williams JB. The Patient Health Questionnaire for adolescents: validation of an instrument for the assessment of mental disorders among adolescent primary care patients. *Journal of Adolescent Health*. 2002 30(3):196-204. [https://doi.org/10.1016/S1054-139X\(01\)00333-0](https://doi.org/10.1016/S1054-139X(01)00333-0)

<b>Item 3</b>	MMAPP12	Use MMAPP12 value as is
<b>Item 4</b>	MMAPP11	Use MMAPP11 value as is
<b>Item 5</b>	MMAPP13	Use MMAPP13 value as is
<b>Item 6</b>	MMAPP16	Use MMAPP16 value as is
<b>Item 7</b>	MMAPP14	Use MMAPP14 value as is
<b>Item 8</b>	MMAPP18, MMAPP19	Take the highest score across these two items
<b>Item 9</b>	MMAPP17	Use MMAPP17 value as is

<b>Total Score (MMAPP_PHQA_TOTAL)</b>	<b>Sum of PHQ-A Items 1 through 9 as derived above</b>
<b>Possible range</b>	0 to 27

## 7. PHQ-9 Equivalent Score

The PHQ-9 (depression section of the Patient Health Questionnaire for Adults)<sup>2</sup> equivalent score uses a nearly identical mapping to the PHQ-A, with one key difference in Item 1. This reflects the adult version of the PHQ which does not include irritability as a depression criterion.

### 7.1 Item Derivation

<b>PHQ-9 Item</b>	<b>Derived From (MMAPP)</b>	<b>How to Derive</b>
<b>Item 1</b>	MMAPP03	Use MMAPP03 value as is
<b>Item 2</b>	MMAPP01, MMAPP04	Take the highest score across these two items
<b>Item 3</b>	MMAPP12	Use MMAPP12 value as is
<b>Item 4</b>	MMAPP13	Use MMAPP13 value as is
<b>Item 5</b>	MMAPP11	Use MMAPP11 value as is
<b>Item 6</b>	MMAPP16	Use MMAPP16 value as is
<b>Item 7</b>	MMAPP14	Use MMAPP14 value as is

<sup>2</sup> Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: Validity of a Brief Depression Severity Measure. *Journal of General Internal Medicine*. 2001 16(9): 606-613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>

<b>Item 8</b>	MMAPP18, MMAPP19	Take the highest score across these two items
<b>Item 9</b>	MMAPP17	Use MMAPP17 value as is

<b>Total Score (MMAPP_PHQ9_TOTAL)</b>	<b>Sum of PHQ-9 Items 1 through 9 as derived above</b>
<b>Possible range</b>	0 to 27

### i PHQ-A vs PHQ-9: Key Difference

PHQ-A Item 1 = MAX(MMAPP01, MMAPP02, MMAPP04) — includes irritability (MMAPP02), which is a hallmark depression symptom in adolescents.

PHQ-9 Item 1 = MAX(MMAPP01, MMAPP04) — does not include irritability, consistent with the adult PHQ-9.

In the original PHQ tools, the order of items are also different between the PHQ-A and PHQ-9. In PHQ-9, lack of interest or pleasure (anhedonia) is item 1, sad mood is item 2, easily tired is item 4, and poor appetite is item 5. In the adolescent version (PHQ-A), sad mood is item 1, lack of interest or pleasure is item 2, poor appetite is item 4, and easily tired is item 5.

All other items are derived identically across PHQ-A and PHQ-9.

## 8. GAD-7 Equivalent Score

The GAD-7 (Generalized Anxiety Disorder 7-item subscale of the Patient Health Questionnaire)<sup>3</sup> equivalent score can be calculated from MMAPP items when all 13 anxiety items have been administered. The GAD-7 equivalent score is derived directly from 7 MMAPP items. Each MMAPP item maps directly to one GAD-7 item; no maximum derivation is required.

### 8.1 Item Derivation

<b>GAD-7 Item</b>	<b>MMAPP Item</b>	<b>Item Content</b>
<b>Item 1</b>	<b>MMAPP05</b>	Nervous or anxious
<b>Item 2</b>	<b>MMAPP10</b>	Unable to stop or control worries
<b>Item 3</b>	<b>MMAPP09</b>	Worried about different things
<b>Item 4</b>	<b>MMAPP23</b>	Difficulty relaxing or feeling calm
<b>Item 5</b>	<b>MMAPP19</b>	Restless or unable to sit still
<b>Item 6</b>	<b>MMAPP02</b>	Annoyed or irritable

<sup>3</sup> Spitzer RL, Kroenke K, Williams JBW, Löwe B. A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Archives of Internal Medicine*. 2006 166(10):1092-1097. <https://doi.org/10.1001/archinte.166.10.1092>. The adolescent version of GAD-7 was validated by Johnson et al. (2002) *ibid*.

<b>Item 7</b>	<b>MMAPP08</b>	Worried that bad things will happen
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<b>Total Score (MMAPP_GAD7_TOTAL)</b>	<b>Sum of MMAPP05 + MMAPP10 + MMAPP09 + MMAPP23 + MMAPP19 + MMAPP02 + MMAPP08</b>
<b>Number of items</b>	7 items
<b>Possible range</b>	0 to 21

## 9. MMAPP Score Summary

<b>Score</b>	<b>Variable Name</b>	<b>Range</b>	<b>Key Items</b>
<b>MMAPP Depression Total</b>	MMAPP_DEP_SUM	0 – 45	15 MMAPP items: Requires MMAPP Depression screener items (1-4) and depression subsection items (11-21) to be administered)
<b>MMAPP Anxiety Total</b>	MMAPP_ANX_SUM	0 – 39	13 MMAPP items: Requires all MMAPP Anxiety screener items (5-10) and anxiety subsection (19-25) to be administered
<b>PHQ-A Equivalent</b>	MMAPP_PHQA_TOTAL	0 – 27	9 items derived from MMAPP: Requires all 15 MMAPP Depression items (1-4, 11-21) to be administered
<b>PHQ-9 Equivalent</b>	MMAPP_PHQ9_TOTAL	0 – 27	9 items derived from MMAPP: requires all 15 MMAPP Depression items (1-4, 11-21) to be administered
<b>GAD-7 Equivalent</b>	MMAPP_GAD7_TOTAL	0 – 21	7 items derived from MMAPP: requires all MMAPP screening items (1-10) and anxiety subsection items (19-25) to be administered

## 10. Important Notes for Field Implementation

### 10.1 Automated Analysis Tools

#### Automated Scoring Tools: Under Development

Python-based automated scoring scripts for all MMAPP scores described in this guide are currently under development by the UNICEF CAMH team.

These tools will automate the calculations described in this guide and support standardized data analysis across country programmes. Until they are available, implementers should follow this manual guide.

To obtain the scoring tool upon release, or for technical assistance with scoring and data analysis in the interim, please reach out to the UNICEF CAMH team.

## 10.2 When All 25 Items Are Required

Administration of all 25 items of the MMAPP is recommended for the determination of depression and anxiety prevalence rates or for evaluating interventions. Under resource-constrained conditions, the two-stage use may be selected.

The PHQ-A, PHQ-9, and GAD-7 equivalent scores can only be calculated when the full set of 25 MMAPP items (MMAPP01–25) has been administered. Ensure that your data collection protocol requires administration of all 25 items if these scores are needed.

## 10.3 Missing Data

- If a respondent did not answer one or more items, the sum score may underestimate true severity.
- Document the number of missing values per item and per respondent.
- For guidance on handling missing data in analysis, contact the UNICEF Mental Health Measurement Team.

## 10.4 Score Interpretation and Cut-offs

### i No Cut-offs Included in This Guide

This guide covers score calculation only. Cut-off scores for classifying respondents (e.g., depression caseness) are not included here, as they require locally or regionally validated values.

Regional and linguistic validations of MMAPP cut-offs are ongoing. In the meantime, see Cutt-Off Score Use Guideline in the MMAPP Implementation Guideline main document to guide decision making around use of cut-off scores. For the most up-to-date cut-off values for your population and language context, contact the UNICEF CAMH team.

### Contact for Tools and Technical Assistance

For automated scoring tools, cut-off values, or technical implementation support:

#### **UNICEF Child and Adolescent Mental Health (CAMH) Measurement Workstream**

*MMAPP Initiative (Measuring Mental Health Among Adolescents and Young People at the Population Level)*

Contact: [ITY-CAMH-Data@unicef.org](mailto:ITY-CAMH-Data@unicef.org)