

Nederlandse PROMIS referentie waarden

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Interpretatie van PROMIS T-scores

PROMIS scores worden altijd uitgedrukt in een T-score. Een T-score is een gestandaardiseerde score. Hierbij wordt aan de gemiddelde score in een bepaalde populatie de waarde 50 toegekend. De standaard deviatie wordt gelijk gesteld aan 10 punten.

Bij PROMIS is in de meeste gevallen de waarde van 50 gelijk gesteld aan de gemiddelde score van de algemene Amerikaanse bevolking. In sommige gevallen is een score van 50 gebaseerd op een combinatie van algemene bevolking en een klinisch sample, zoals bij de pijn en slaap item banken en bij de item banken voor kinderen.

Meer informatie over de Amerikaanse referentie populaties vind je hier: [Reference Populations \(healthmeasures.net\)](https://healthmeasures.net)

Naast deze referentie waarden zijn ook afkappunten bepaald voor milde, matige, en ernstige scores op basis van Amerikaanse data: [Score Cut Points \(healthmeasures.net\)](https://healthmeasures.net)

Voor gebruik van PROMIS in Nederland (en Vlaanderen) zijn gemiddelde PROMIS T-scores en afkappunten berekend in een aantal grote steekproeven, die representatief zijn voor de algemene Nederlandse populatie. Deze scores kunnen als referentie waarden worden gebruikt.

In dit document presenteren we de Nederlandse referentie waarden van de PROMIS instrumenten waarvoor deze tot nu toe zijn berekend. Als er meer referentie waarden beschikbaar komen zullen deze in een nieuwe versie van dit document worden toegevoegd.

De referentie waarden worden weergegeven per domein en gelden voor alle PROMIS instrumenten die dat betreffende domein meten, dus voor de hele item banken, short forms, en CAT.

Bij gebruik van deze referentie waarden graag verwijzen naar de aangegeven publicaties.

Referentie waarden PROMIS domeinen voor volwassenen

PROMIS Scale v1.2 - Global Health

Table 3 PROMIS GMH and GPH reference values^a for the Dutch general population by age and gender and comparisons with the US reference population [23]

	Global Mental Health				Global Mental Health-2a	Global Physical Health			Global Physical Health-2a
	N Dutch population (%)	N US population (%)	Dutch mean T-score (SD)	US mean T-score (SD)		N US population (%)	Dutch mean T-score (SD)	US mean T-score (SD)	
Total	4370 (100)	5215 (100)	44.7 (8.0)	50.0 (10.0)	44.9 (7.6)	5228 (100)	45.2 (9.2)	50.0 (10.0)	45.2 (8.3)
Gender									
Male	2069 (47)	2206 (42)	45.5 (8.0)	50.8 (10.0)	45.4 (7.5)	2212 (42)	46.1 (9.2)	51.2 (9.8)	45.6 (8.5)
Female	2301 (53)	3008 (58)	44.1 (8.0)	49.4 (10.0)	44.4 (7.6)	3015 (58)	44.5 (9.1)	49.1 (10.1)	44.9 (8.2)
Age in years									
18–34	891 (20)	1183 (23)	45.6 (8.0)	48.5 (9.7)	45.8 (7.6)	1182 (23)	47.8 (8.0)	51.6 (8.4)	48.6 (7.5)
35–44	753 (17)	863 (17)	43.8 (8.3)	48.4 (10.4)	44.0 (7.8)	865 (17)	45.2 (8.2)	50.1 (9.8)	45.7 (7.5)
45–54	646 (15)	902 (17)	43.6 (8.1)	48.2 (10.3)	43.8 (7.6)	910 (17)	44.6 (9.3)	48.2 (10.9)	44.7 (8.2)
55–64	918 (21)	873 (17)	43.6 (8.0)	50.3 (10.5)	43.8 (7.6)	875 (17)	43.4 (9.7)	48.8 (11.3)	43.3 (8.7)
65–74	893 (20)	715 (14)	45.9 (7.4)	53.1 (8.8)	45.8 (7.1)	713 (14)	45.1 (9.5)	51.0 (9.9)	44.1 (8.4)
75+	269 (6)	679 (13)	47.3 (7.7)	53.4 (8.4)	46.8 (7.4)	683 (13)	44.9 (9.8)	49.9 (9.2)	43.7 (8.7)

SD standard deviation

^a T-scores, higher scores represent better health

Table 4 Thresholds for GPH and GMH T-scores based on US reference population [25] and the Dutch general population

	NL Global Mental Health threshold	US Global Mental Health threshold	NL Global Physical Health threshold	US Global Physical Health threshold
Poor	< 38	< 29	< 35	< 35
Fair	38–42	29–39	35–43	35–41
Good	43–48	40–47	44–50	42–49
Very good	49–55	48–55	51–56	50–57
Excellent	≥56	≥56	≥57	≥58

Referentie waarden voor Global01 en Global02

Item	Item content	Distribution of responses over the response categories (%; total n = 4370)					Mean score (SD)
		Poor (1)	Fair (2)	Good (3)	Very good (4)	Excellent (5)	
Global01	In general, would you say your health is:	7.0	30.9	41.9	16.2	4.1	2.8 (0.9)
Global02	In general, would you say your quality of life is:	4.3	24.9	44.9	21.4	4.6	3.0 (0.9)

Voor Global01 en Global02 kunnen de volgende afkappunten worden gebruikt:

3,4,5 = binnen normale grenzen

2 = mild

1 = ernstig

Deze tabellen zijn te vinden in onderstaand artikel:

Elsman EBM, Roorda LD, Crins MHP, Boers M, Terwee CB. Dutch reference values for the Patient-Reported Outcomes Measurement Information System Scale v1.2 - Global Health (PROMIS-GH). J Patient Rep Outcomes 2021;5:38.

PROMIS v1.0 Anxiety en v1.0 Depression

Table 4. PROMIS anxiety and depression Dutch reference values^a by age and gender and comparisons with the US general population

	Anxiety				Depression		
	N Dutch population (%)	N US population (%)	Dutch mean T-score (SD)	US mean T-score (SD)	N US population (%)	Dutch mean T-score (SD)	US mean T-score (SD)
Total	1002 (100)	2724 (100)	49.9 (10.1)	50.0 (10.0)	2160 (100)	49.6 (10.0)	50.0 (10.0)
Gender							
Male	480 (48)	1069 (39)	49.0 (10.0)	48.6 (9.5)	890 (41)	48.8 (10.1)	48.7 (9.7)
Female	522 (52)	1654 (61)	50.6 (10.1)	50.9 (10.2)	1269 (59)	50.4 (9.9)	50.9 (10.1)
Age in years							
18-34	253 (25)	659 (24)	51.8 (9.9)	52.4 (10.7)	496 (23)	52.0 (9.3)	52.3 (10.9)
35-44	147 (15)	496 (18)	51.4 (10.9)	50.9 (11.1)	366 (17)	50.5 (10.8)	50.6 (10.9)
45-54	173 (17)	417 (15)	50.0 (10.9)	50.1 (9.5)	359 (17)	50.0 (11.0)	50.8 (10.0)
55-64	216 (22)	442 (16)	48.9 (9.4)	49.3 (9.5)	373 (17)	48.8 (9.8)	49.5 (9.7)
65-74	191 (19)	365 (13)	47.5 (9.1)	48.1 (8.8)	290 (13)	47.0 (8.9)	48.4 (8.8)
75+	22 (2)	345 (13)	46.2 (9.4)	46.9 (7.9)	276 (13)	46.0 (9.6)	46.5 (7.2)

SD: standard deviation

^a T-scores, higher scores represent more anxiety/depression; T-scores were calculated based on the original US item parameters

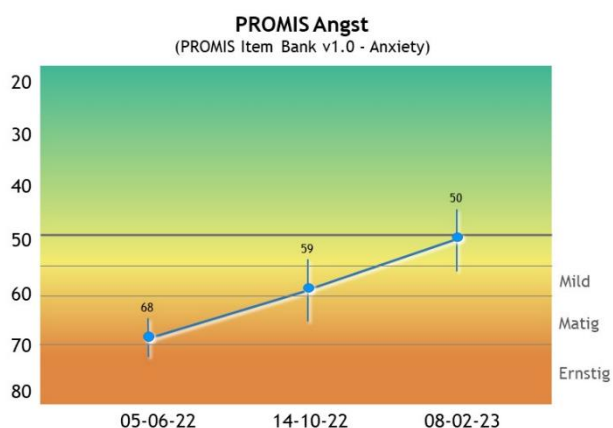
De afkappunten voor milde, matige, en ernstige scores voor PROMIS Angst en Depressie zijn hetzelfde als die in Amerika zijn vastgesteld (zie voorbeeld grafieken hieronder):

<55 = binnen normale grenzen

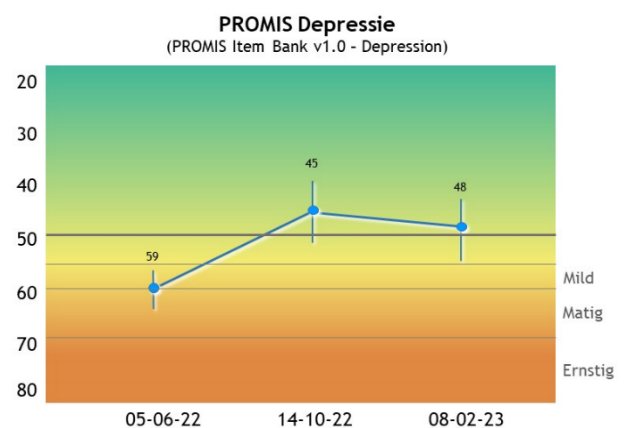
55-60 = mild

60-70 = matig

> 70 = ernstig



Scores en hun interpretatie (hoger is beter: een stijgende lijn betekent minder symptomen)
 — = gemiddelde score van de Nederlandse bevolking
 | = precisie van de score (95% betrouwbaarheidsinterval)



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Elsman EBM, Flens G, de Beurs E, Roorda LD, Terwee CB. Towards standardization of measuring anxiety and depression: Differential item functioning for language and Dutch reference values of PROMIS item banks. PLoS One 2022;17:e0273287.

PROMIS v1.0 Fatigue

Table 6. PROMIS fatigue reference values^a for the Dutch general population by age and gender, and comparisons with the US reference population

	N Dutch population (%)	Dutch mean T- score (SD)	N US population (%)	US mean T-score (SD)
Total	1006 (100)	49.1 (10.8)	3067 (100)	50.0 (10.0)
Gender				
Male	472 (47)	47.5 (10.7)	1183 (39)	48.2 (9.6)
Female	534 (53)	50.4 (10.8)	1884 (61)	51.1 (10.1)
Age in years				
18-34	192 (19)	50.3 (9.6)	706 (23)	50.5 (9.7)
35-44	229 (23)	50.6 (10.3)	551 (18)	51.0 (10.7)
45-54	120 (12)	49.4 (11.2)	513 (17)	51.6 (10.1)
55-64	192 (19)	49.5 (11.7)	516 (17)	49.7 (10.8)
65-74	173 (17)	47.1 (11.2)	396 (13)	48.1 (9.3)
75+	100 (10)	45.4 (10.3)	385 (13)	48.0 (8.3)

SD: standard deviation

^a T-scores, higher scores represent more fatigue

De afkappunten voor milde, matige, en ernstige scores voor PROMIS Vermoeidheid zijn hetzelfde als die in Amerika zijn vastgesteld (zie voorbeeld grafieken hieronder):

<55 = binnen normale grenzen

55-60 = mild

60-70 = matig

> 70 = ernstig

Terwee CB, Elsmann EBM, Roorda LD. Towards standardization of fatigue measurement: Psychometric properties and reference values of the PROMIS Fatigue item bank in the Dutch general population. *Res Methods Med Health Sciences* 2022;3:86-98.

PROMIS v1.2 Physical Function

Table 3. PROMIS Physical Function Dutch reference values by age and gender and compared with the US reference population

	N Dutch population (%)	N US population (%)	Dutch mean T- score (SD)^a	US mean T-score (SD)
Total	1310 (100)	3407 (100)	49.8 (10.8)	50.0 (10.0)
Gender				
Male	621 ^b (47)	1363 (40)	50.9 (11.2)	51.7 (9.7)
Female	689 (53)	2044 (60)	48.8 (10.3)	48.9 (10.0)
Age in years				
18-34	282 (22)	782 (23)	55.2 (9.5)	55.1 (8.4)
35-44	214 (16)	605 (18)	52.8 (10.5)	52.0 (9.8)
45-54	199 (15)	567 (17)	50.0 (11.5)	49.0 (10.4)
55-64	279 (21)	565 (16)	46.4 (10.1)	47.5 (10.4)
65-74	280 (22)	457 (13)	46.7 (9.6)	47.2 (9.0)
75+	56 (4)	431 (13)	42.6 (9.5)	45.6 (8.5)
Distribution-based thresholds (based on SD)				
within normal limits	885 (68)		>45	>45
mild	174 (13)		39-45	40-45
moderate	217 (17)		28-39	30-40
severe	34 (2)		<28	<30
Anchor-based thresholds (based on self-reported limitations)				
no limitations	527 (40)		59.0 (7.0)	
mild	452 (35)		48.1 (5.6)	
moderate	259 (20)		39.4 (5.7)	
severe	72 (5)		30.1 (6.6)	

SD: standard deviation

^a Higher scores represent better physical function

^b In the publication 691 is reported but this should be 621.

De Nederlandse distribution-based thresholds worden aanbeloven om te gebruiken. Echter, onderzoek liet zien dan patiënten soms lagere scores ook al mild, matig of ernstig vinden.

Terwee CB, Roorda LD. Dutch reference values for PROMIS® pain, physical function, and participation measures, compared to recommended US reference values. *Ann Med Nov 2023*;1:1-11.

PROMIS v2.0 Upper Extremity

PROMIS Upper Extremity function Dutch reference values by age and gender

	N Dutch population (%)	Dutch mean T- score (SD)^a
Total	1310 (100)	48.8 (9.6)
Gender		
Male	621 (47)	50.0 (9.8)
Female	689 (53)	47.8 (9.2)
Age in years		
18-34	282 (22)	51.7 (8.4)
35-44	214 (16)	50.1 (9.3)
45-54	199 (15)	48.3 (10.4)
55-64	279 (21)	47.1 (9.6)
65-74	280 (22)	47.7 (9.3)
75+	56 (4)	45.5 (9.8)
Distribution-based thresholds (based on SD)		
within normal limits	927 (71)	>44
mild	161 (12)	40-44
moderate	181 (14)	30-39
severe	41 (3)	<30

SD: standard deviation

^a Higher scores represent better upper extremity function

Deze referentie gegevens zijn berekend op basis van 42 van de 46 items van de UE item bank, die ook in v1.2 Physical Function item bank zitten.

Terwee CB, Roorda LD. Dutch reference values for PROMIS® pain, physical function, and participation measures, compared to recommended US reference values. Ann Med Nov 2023;1:1-11.

PROMIS V1.1 Pain Interference en V1.1. Pain Behavior

Table 4. PROMIS Pain Interference and Pain Behavior Dutch reference values by age and gender and compared with the US reference population

	Pain Interference				Pain Behavior			
	N Dutch population (%)	N US population (%)	Dutch mean T- score (SD) ^a	US mean T-score (SD) ^a	N Dutch population (%)	N US population (%)	Dutch mean T- score (SD) ^a	US mean T-score (SD) ^a
Total	1052 (100)	3036 (100)	54.9 (8.6)	50.0 (10.0)	1052 (100)	3050 (100)	52.0 (9.4)	50.0 (10.0)
Gender								
Male	499 (47)	1180 (39)	54.7 (8.7)	48.3 (9.3)	499 (47)	1199 (39)	51.7 (9.5)	49.0 (9.7)
Female	553 (53)	1856 (61)	55.0 (8.5)	51.1 (10.3)	553 (53)	1851 (61)	52.3 (9.4)	50.7 (10.1)
Age in years								
18-34	200 (19)	712 (23)	52.3 (8.9)	47.8 (9.0)	200 (19)	699 (23)	49.5 (11.0)	47.6 (10.2)
35-44	174 (16)	548 (18)	54.5 (8.7)	50.1 (10.2)	174 (16)	561 (18)	52.7 (9.1)	50.0 (10.6)
45-54	156 (15)	499 (17)	55.9 (8.2)	51.9 (11.1)	156 (15)	507 (17)	53.3 (9.0)	52.2 (10.1)
55-64	239 (23)	488 (16)	56.6 (8.4)	51.6 (10.9)	239 (23)	507 (17)	53.1 (9.1)	51.3 (9.7)
65-74	223 (21)	406 (13)	55.0 (8.2)	49.9 (9.3)	223 (21)	402 (13)	52.1 (8.5)	50.1 (9.3)
75+	60 (6)	383 (13)	54.1 (8.1)	49.7 (8.7)	60 (6)	374 (12)	50.9 (8.8)	49.7 (8.7)
Distribution-based thresholds (based on SD)								
within normal limits	695 (66)		<59	<55		641 (61)	<57	<55
mild	203 (19)		59-63	55-60		322 (31)	57-61	55-60
moderate	148 (14)		63-72	61-70		85 (8)	61-71	61-70
severe	8 (1)		>72	>70		4 (0)	>71	>70
Anchor-based thresholds (based on self-reported limitations)								
no limitations	238 (23)		45.9 (6.8)		168 (16)		44.0 (10.8)	
mild	456 (43)		54.1 (6.0)		548 (52)		51.4 (8.0)	
moderate	264 (25)		60.2 (5.6)		277 (26)		56.2 (7.7)	
severe	94 (9)		66.2 (5.1)		59 (6)		61.4 (4.6)	

SD: standard deviation

^a Higher scores represent more pain interference/pain behavior

De Nederlandse distribution-based thresholds worden aanbevolen om te gebruiken. Echter, onderzoek liet zien dat patiënten soms lagere scores ook al mild, matig of ernstig vinden.

Terwee CB, Roorda LD. Dutch reference values for PROMIS[®] pain, physical function, and participation measures, compared to recommended US reference values. *Ann Med Nov 2023*;1:1-11.

PROMIS Numeric Rating Scale V1.0 Pain Intensity

0-2 = binnen normale grenzen

3-4 = mild

5-7 = matig

8-10 = ernstig

Dit is gebaseerd op drie referenties:

Orlando Edelen M, Saliba D. Correspondence of Verbal Descriptor and Numeric Rating Scales for Pain Intensity: An Item Response Theory Calibration. *J Gerontol A Biol Sci Med Sci 2010*;65(7):778-785.

Antmann D, Cook KF, Jensen MP, Chen W, Choi S, Revicki D, Cella D, Rothrock N, Keefe F, Callahan L, Lai J. Development of a PROMIS item bank to measure pain interference. *Pain 2010*;150(1):173-182.

Boonstra AM, Stewart RE, Köke AJA, Oosterwijk RFA, Swaan JL, Schreurs KMG, Schiphorst Preuper HR. Cut-Off Points for Mild, Moderate, and Severe Pain on the Numeric Rating Scale for Pain in Patients with Chronic Musculoskeletal Pain: Variability and influence of sex and catastrophizing. *Front Psychol 2016*;7:1466.

PROMIS v2.0 Ability to Participate in Social Roles and Activities and Satisfaction with Social Roles and Activities

Table 5. PROMIS Ability to Participate in Social Roles and Activities and Satisfaction with Social Roles and Activities Dutch reference values by age and gender and compared with the US reference population

	Ability to Participate in Social Roles and Activities				Satisfaction with Social Roles and Activities			
	N Dutch population (%)	N US population (%)	Dutch mean T- score (SD) ^a	US mean T-score (SD) ^a	N Dutch population (%)	N US population (%)	Dutch mean T- score (SD) ^a	US mean T-score (SD) ^a
Total	1002 (100)	940 (100)	50.6 (9.5)	50.0 (9.8)	1002 (100)	922 (100)	47.5 (8.3)	50.0 (9.8)
Gender								
Male	477 (48)	335 (36) ^b	51.2 (9.5)	49.6 (9.2)	477 (48)	336 (36) ^d	48.1 (8.1)	50.2 (9.2)
Female	525 (52)	487 (52)	50.1 (9.5)	49.8 (10.1)	525 (52)	487 (53)	46.9 (8.4)	50.0 (10.2)
Age in years								
18-34	217 (22)	91 (10) ^c	51.5 (9.5)	49.7 (9.3)	217 (22)	92 (10) ^d	48.6 (8.1)	50.8 (9.1)
35-44	136 (13)	76 (8)	48.4 (9.6)	51.6 (8.3)	136 (13)	76 (8)	45.0 (8.4)	50.2 (9.0)
45-54	171 (17)	145 (15)	51.1 (9.4)	47.5 (10.8)	171 (17)	145 (16)	46.6 (8.3)	48.4 (10.3)
55-64	208 (21)	230 (24)	49.4 (9.9)	49.2 (9.8)	208 (21)	230 (25)	46.9 (8.5)	49.4 (10.0)
65-74	217 (22)	210 (22)	51.4 (8.4)	51.0 (9.8)	217 (22)	210 (23)	48.7 (7.4)	51.9 (10.0)
75+	53 (5)	69 (7)	52.5 (11.0)	50.0 (8.0)	53 (5)	69 (7)	49.6 (9.3)	49.6 (8.1)
Distribution-based thresholds (based on SD)								
within normal limits	682 (68)		>46	>45	726 (73)		>43	>45
mild	185 (19)		41-46	40-45	115 (11)		39-43	40-45
moderate	114 (11)		32-41	30-39	119 (12)		31-39	30-39
severe	21 (2)		<32	<30	42 (4)		<31	<30
Anchor-based thresholds (based on self-reported limitations)								
no limitations	430 (43)		56.8 (7.7)		430 (43)		51.9 (7.2)	
mild	319 (32)		49.3 (6.4)		337 (34)		47.4 (5.0)	
moderate	184 (18)		44.1 (6.7)		168 (17)		41.6 (5.8)	
severe	69 (7)		35.7 (7.1)		67 (7)		34.0 (9.2)	

SD: standard deviation

^a Higher scores represent more ability to participate/satisfaction with participation

^b 12% missing values, ^c 14% missing values, ^d 11% missing values

De Nederlandse distribution-based thresholds worden aanbevolen om te gebruiken. Echter, onderzoek liet zien dat patiënten soms lagere scores ook al mild, matig of ernstig vinden.

Terwee CB, Roorda LD. Dutch reference values for PROMIS[®] pain, physical function, and participation measures, compared to recommended US reference values. *Ann Med* Nov 2023;1:1-11.

PROMIS V1.0 Sleep Disturbance en v1.0 Sleep-Related Impairment

Table 7. PROMIS reference values^a for the Dutch general population by age and gender, and comparisons with the US reference population

			Sleep Disturbance		Sleep-Related Impairment	
	N Dutch population (%)	N US population (%)	Dutch mean T- score (SD)	US mean T-score (SD)	Dutch mean T- score (SD)	US mean T-score (SD)
Total	1006 (100)	535 (100)	49.7 (9.8)	47.1 (9.4)	49.3 (11.2)	47.2 (8.7)
Gender						
Male	472 (47)	276 (52)	48.2 (9.9)	46.3 (9.5)	47.8 (11.0)	46.2 (9.1)
Female	534 (53)	259 (48)	50.9 (9.5)	47.9 (9.3)	50.7 (11.2)	48.2 (8.0)
Age in years						
18-34	192 (19)	135 (25)	50.8 (8.4)	47.5 (9.0)	52.6 (9.9)	49.2 (8.1)
35-44	229 (23)	80 (15)	50.6 (10.0)	49.3 (9.3)	52.0 (11.2)	49.4 (8.7)
45-54	120 (12)	75 (14)	49.1 (10.3)	48.7 (11.1)	49.7 (11.0)	47.7 (10.4)
55-64	192 (19)	91 (17)	50.6 (10.2)	47.0 (8.9)	48.9 (11.6)	46.5 (8.7)
65-74	173 (17)	55 (10)	47.8 (9.8)	44.4 (9.5)	45.6 (11.0)	42.8 (7.1)
75+	100 (10)	99 (19)	47.4 (9.4)	44.9 (8.5)	43.9 (9.4)	45.2 (7.4)

SD: standard deviation

^a T-scores, higher scores represent more sleep disturbances or more sleep-related impairment

Voor de PROMIS Slaap instrumenten zijn de volgende afkappunten bepaald:

Sleep Disturbance

<55 = binnen normale grenzen

55-59 = mild

60-69 = matig

≥70 = ernstig

Sleep-Related Impairment

<55 = binnen normale grenzen

55-60 = mild

61-71 = matig

≥72 = ernstig

Terwee CB, van Litsenburg RRL, Elsman EBM, Roorda LD. Psychometric properties and reference values of the PROMIS Sleep item banks in the Dutch general population. J Sleep Res 2023;32:e13753.w.