



Systematic Review Monitoring daily sleep, mood and affect using digital technologies and wearables: A systematic review

Supplementary Materials

- Table S1. PRISMA 2020 Statement and Checklist
- Table S2. Systematic search strategy
- Table S3. Records excluded at full-text screening
- Table S4. Data extraction categories
- Table S5. Standardised affective state measures
- Table S6. Number and timing of self-report assessments





Table S1. PRISMA 2020 Statement and Checklist.



PRISMA 2020 Checklist

Section and Topic	ltem #	Checklist item	Location where item is reported
TITLE	÷		
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Pages 1 & 2
METHODS	÷	·	
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Pages 3-5 & Table 1
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Pages 2-3
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplementary Table S2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Pages 4-5
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Pages 3-5 and Supplementary Table S4
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Supplementary Table S4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Table 2 & Supplementary Table S4

Section and Topic	ltem #	Checklist item	Location where item is reported
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Pages 4-5 & Table 2
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Pages 2-6
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Pages 6-31 & Figures 2 - 4
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	N/A
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Page 5
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Figure 1 & Page 5
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Supplementary Table S3
Study characteristics	17	Cite each included study and present its characteristics.	Table 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Table 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	N/A
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Page 5 & Table 2
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Pages 30-47
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A

Section and Topic	ltem #	Checklist item	Location where item is reported
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	22 Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 42 - 50
	23b	Discuss any limitations of the evidence included in the review.	Page 49
	23c	Discuss any limitations of the review processes used.	Page 49
	23d	Discuss implications of the results for practice, policy, and future research.	Page 48 - 50
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Review was not registered
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Available on request
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Review was not registered
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 50
Competing interests	26	Declare any competing interests of review authors.	Page 50
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	N/A





Table S2. Systematic search strategy.

Database	Full search strategies across each database. Search date to 28th May 2024
APA PsycINFO	Database: APA PsycInfo <1806 to May Week 4 2024>
	Search Strategy:
	1 sleep*.id. or (sleep* or asleep or slept).ab,ti. or exp Sleep/ (104386)
	2 (mood*1 or emotion* or affect*).id. or (mood* or emotion* or affect or affective or affectivity or well-being or wellbeing).ab,ti. or exp Emotions/ (1076927)
	3 (ecological momentary or experience sampling or diary or diaries).id. or (ecological momentary or
	experience sampling or (ambulatory adj (assessment or study)) or intensive longitudinal or event sampling o
	((diary or diaries) adj2 (study or structured or ambulatory or daily or electronic or online)) or real-time or
	momentary or (daily adj (experience*1 or event*1 or variability)) or day-to-day).ab,ti. or exp Ecological
	Momentary Assessment/ or *journal writing/ or *diary measure/ (47821)
	4 1 and 2 and 3 (862)
Embase	Database: Embase <1974 to 2024 May 24>
	Search Strategy:
	1 sleep*.kw. or (sleep* or asleep or slept).ab,ti. or exp sleep/ (450615)
	2 (mood*1 or emotion* or affect*).kw. or (mood* or emotion* or affect or affective or affectivity or well-being
	or wellbeing).ab,ti. or exp emotion/ (2251816)
	3 (ecological momentary or experience sampling or diary or diaries).kw. or (ecological momentary or
	experience sampling or (ambulatory adj (assessment or study)) or intensive longitudinal or event sampling o
	((diary or diaries) adj2 (study or structured or ambulatory or daily or electronic or online)) or real-time or
	momentary or (daily adj (experience*1 or event*1 or variability)) or day-to-day).ab,ti. or exp ecological
	momentary assessment/ (536354)
	4 1 and 2 and 3 (2163)
Ovid MEDLINE(R)	Database: Ovid MEDLINE(R) ALL <1946 to May 24, 2024>
	Search Strategy:
	1 sleep*.kw. or (sleep* or asleep or slept).tw. or exp Sleep/ (268307)
	2 (mood*1 or emotion* or affect*).kw. or (mood* or emotion* or affect or affective or affectivity or well-being or wellbeing).tw. or exp Emotions/ (1633627)
	3 (ecological momentary or experience sampling or diary or diaries).kw. or (ecological momentary or
	experience sampling or (ambulatory adj (assessment or study)) or intensive longitudinal or event sampling o
	((diary or diaries) adj2 (study or structured or ambulatory or daily or electronic or online)) or real-time or
	momentary or (daily adj (experience*1 or event*1 or variability)) or day-to-day).tw. or exp Ecological
	Momentary Assessment/ (396867)
	4 1 and 2 and 3 (1091)
Scopus	1 (AUTHKEY (sleep*) OR TITLE-ABS (sleep* OR asleep OR slept) OR INDEXTERMS (sleep*)) AND
	(AUTHKEY (mood OR emotion* OR affect*) OR TITLE-ABS (mood* OR emotion* OR well-being OR
	wellbeing) OR TITLE-ABS ({affect} OR {affective} OR {affectivity}) OR INDEXTERMS (mood OR emotion* OR
	affect*)) AND (AUTHKEY ("ecological momentary" OR "experience sampling" OR diary) OR TITLE-ABS
	("ecological momentary" OR "experience sampling" OR {ambulatory assessment} OR {ambulatory study} OF
	"intensive longitudinal" OR "event sampling" OR real-time OR momentary OR day-to-day) OR TITLE-ABS
	(daily PRE/0 (experience OR event OR variability)) OR TITLE-ABS (diary W/1 (study OR structured OR
	ambulatory OR daily OR electronic OR online)) OR INDEXTERMS ("ecological momentary" OR "experience
	sampling" OR diary))
	2 (1,569 document results)

Table S3. Records excluded at full-text screening.

	Records excluded at full-text screening, Author (Date)	Reference	Exclusion Reason
1.	Berry and Webb (1985)	[1]	Wrong study design
2.	Bower et al. (2010)	[2]	Wrong study outcomes
3.	Buysse et al. (2007)	[<u>3]</u>	No control group data
4.	Casement et al. (2021)	[<u>4]</u>	No control group data
5.	Elovainio et al. (2020)	[<u>5]</u>	Wrong study outcomes
6.	Kammerer et al. (2021)	[<u>6]</u>	Reported statistical analyses
7.	Kaufmann et al. (2016)	[<u>Z</u>]	Wrong study design
8.	Kouros and El-Sheikh (2015)	[<u>8]</u>	Wrong study design
9.	Lemola et al. (2013)	[<u>9]</u>	Wrong study design
10.	O'Leary et al. (2016)	[<u>10]</u>	Multiple reports of the same sample
11.	Peltz (2022)	[<u>11]</u>	Wrong study outcomes
12.	Pressman et al. (2017)	[<u>12]</u>	Wrong study design
13.	Strahler et al. (2020)	[<u>13]</u>	Wrong study outcomes
14.	Thota (2020)	[<u>14]</u>	Wrong study outcomes
15.	Totterdell et al. (1995)	[<u>15]</u>	Reported statistical analyses
16.	Coifman et al. (2021)	[<u>16]</u>	Wrong study design
17.	Dong and Zhang (2021)	[<u>17]</u>	Reported statistical analyses
18.	Gumport et al. (2021)	[<u>18]</u>	Reported statistical analyses
19.	Hussain et al. (2021)	[<u>19</u>]	Reported statistical analyses
20.	Hyde et al. (2021)	[<u>20]</u>	Reported statistical analyses
21.	Kaurin et al. (2022)	[<u>21]</u>	No control group data
22.	Lee et al. (2020)	[<u>22]</u>	Wrong study design
23.	Moshe et al. (2021)	[<u>23</u>]	Reported statistical analyses
24.	Muzni et al. (2020)	[<u>24]</u>	Wrong study design
25.	Philbrook and Macdonald-Gagnon (2021)	[<u>25]</u>	Wrong study outcomes
26.	Mousa et al. (2021)	[<u>26</u>]	No control group data
27.	Saksvik-Lehouillier et al. (2021)	[<u>27</u>]	Reported statistical analyses
28.	Sano et al. (2017)	[<u>28]</u>	Wrong publication type
29.	Seidl et al. (2021)	[<u>29]</u>	Reported statistical analyses
30.	Shen et al. (2021)	[<u>30]</u>	Wrong study outcomes
31.	Nater-Mewes et al. (2021)	[<u>31]</u>	Wrong population
32.	Wu et al. (2021)	[<u>32]</u>	Reported statistical analyses
33.	Zamora et al. (2022)	[<u>33]</u>	Wrong study outcomes
34.	Zawadzki et al. (2022)	[<u>34]</u>	Reported statistical analyses

35.	Almeida et al. (2022)	[<u>35]</u>	Wrong study design
36.	Alzueta et al. (2022)	[<u>36]</u>	Reported statistical analyses
37.	Andel et al. (2022)	[<u>37]</u>	Wrong study design
38.	S. Bai et al. (2022)	[<u>38]</u>	Reported statistical analyses
39.	Y. Bai et al. (2022)	[<u>39]</u>	Reported statistical analyses
40.	Balouch et al. (2022)	[<u>40]</u>	Wrong study outcomes
41.	Blok et al. (2022)	[<u>41]</u>	Wrong study design
42.	Bonnar et al. (2022)	[<u>42]</u>	Wrong study outcomes
43.	Burke et al. (2022)	[<u>43]</u>	Wrong population
44.	Dominiak et al. (2022)	[44]	Reported statistical analyses
45.	Goyer et al. (2022)	[<u>45]</u>	Wrong study design
46.	Hamilton et al. (2021)	[<u>46]</u>	Wrong study design
47.	Horwitz et al. (2022)	[47]	Reported statistical analyses
48.	Kabir et al. (2022)	[<u>48]</u>	Wrong publication type
49.	Kivela et al. (2022)	[<u>49]</u>	Wrong study outcomes
50.	Krohn et al. (2022)	[<u>50]</u>	Reported statistical analyses
51.	Le et al. (2022)	[<u>51]</u>	Wrong study design
52.	Lewis et al. (2023)	[<u>52]</u>	Wrong study design
53.	Manasse et al. (2022)	[<u>53]</u>	Reported statistical analyses
54.	Massar et al. (2022)	[<u>54</u>]	Reported statistical analyses
55.	Moilanen et al. (2020)	[<u>55</u>]	Wrong study outcomes
56.	Newman et al. (2021)	[<u>56</u>]	Wrong study outcomes
57.	Niemeijer et al. (2022)	[<u>57</u>]	Wrong study design
58.	O'Rourke and Sixsmith (2021)	[<u>58</u>]	Wrong study design
59.	Park et al. (2022)	[<u>59]</u>	Wrong study outcomes
60.	Parsons and Young (2022)	[<u>60]</u>	Wrong study design
61.	Riedy et al. (2022)	[<u>61]</u>	Reported statistical analyses
62.	Şansal (2021)	[<u>62]</u>	Wrong study outcomes
63.	Sletten et al. (2022)	[<u>63]</u>	Wrong study design
64.	Wieman et al. (2022)	[<u>64]</u>	Wrong study design
65.	Willroth et al. (2022)	[<u>65</u>]	Reported statistical analyses
66.	Xia et al. (2022)	[<u>66]</u>	Wrong study outcomes
67.	Yap et al. (2021)	[<u>67]</u>	Wrong study outcomes
68.	Zhang et al. (2022)	[<u>68]</u>	Reported statistical analyses
69.	Zubek et al. (2022)	[<u>69]</u>	Wrong study outcomes
	Zuidersma et al. (2022)	[<u>00</u>]	Wrong study design

71.	Amon et al. (2022)	[71]	Reported statistical analyses
72.	Barbeau et al. (2022)	[<u>72</u>]	Wrong study design
73.	Lim et al. (2022)	[<u>73</u>]	Wrong study outcomes
74.	Walsh et al. (2022)	[<u>74]</u>	Wrong study outcomes
75.	Asiamah-Asare et al. (2023)	[<u>75</u>]	Reported statistical analyses
76.	Ballesio et al. (2023)	[<u>76</u>]	Reported statistical analyses
77.	Bundo et al. (2023)	[77]	Reported statistical analyses
78.	Frerart et al. (2023)	[<u>78]</u>	Reported statistical analyses
79.	Junca-Silva and Mendes (2023)	[<u>79]</u>	Wrong study outcomes
80.	Lee et al. (2023)	[<u>80]</u>	Reported statistical analyses
81.	Massar et al. (2023)	[<u>81]</u>	Wrong study design
82.	Mathew et al. (2023)	[<u>82]</u>	Multiple reports of the same sample
83.	Menghini et al. (2023)	[<u>83]</u>	Reported statistical analyses
84.	Nakagawa et al. (2023)	[<u>84]</u>	Reported statistical analyses
85.	Newman et al. (2023)	[<u>85]</u>	Wrong study outcomes
86.	Smith et al. (2023)	[<u>86]</u>	Reported statistical analyses
87.	Speyer et al. (2023)	[<u>87]</u>	Wrong study design
88.	Stapp et al. (2023)	[<u>88]</u>	Wrong study outcomes
89.	Tang et al. (2023)	[<u>89]</u>	Reported statistical analyses
90.	Urwin et al. (2023)	[<u>90]</u>	Reported statistical analyses
91.	Walsh et al. (2023)	[<u>91]</u>	Reported statistical analyses
92.	Whiston, Igou, Fortune, Analog Devices, et al. (2023)	[<u>92]</u>	Wrong study outcomes
93.	Whiston, Igou, Fortune and Semkovska (2023)	[<u>93]</u>	Reported statistical analyses
94.	Xu et al. (2023)	[<u>94]</u>	Reported statistical analyses
95.	Zhang et al. (2023)	[<u>95]</u>	Reported statistical analyses
96.	Zhu, Martin, et al. (2023)	[<u>96]</u>	Reported statistical analyses
97.	Zhu, Zhao, et al. (2023)	[<u>97]</u>	Reported statistical analyses
98.	Chen et al. (2024)	[<u>98]</u>	Reported statistical analyses
99.	Dickman et al. (2024)	[<u>99]</u>	Wrong study outcomes
100.	Hoyniak et al. (2024)	[<u>100]</u>	Wrong study design
101.	Kinoshita et al. (2024)	[<u>101]</u>	Wrong study design
102.	Labbaf et al. (2024)	[<u>102]</u>	Wrong publication type
103.	Lenneis et al. (2024)	[<u>103]</u>	Multiple reports of the same sample
104.	Li et al. (2024)	[<u>104]</u>	Reported statistical analyses
105.	Palatine et al. (2024)	[<u>105]</u>	Wrong study design
106.	Siepe et al. (2024)	[<u>106]</u>	Wrong study design

107.	Song et al. (2024)	[<u>107</u>]	Wrong study design
108.	Toenders et al. (2024)	[<u>108]</u>	Wrong study design
109.	Wen et al. (2024)	[<u>109]</u>	Wrong study outcomes
110.	Wijnhoven et al. (2024)	[<u>110]</u>	Wrong study outcomes
111.	Xu et al. (2024)	[<u>111]</u>	Wrong study design
112.	Yang et al. (2024)	[<u>112]</u>	Wrong study design

Table S4. Data extraction categories.

Information extracted from full text records:

- Author(s)
- Publication year
- Study location (geographical region)
- Study aims
- Assessment tools
- Sleep / affect parameters
- Actigraphic methods
- Number & timing of daily assessments
- Length of data collection
- Sample size & participant characteristics
- Inclusion / exclusion criteria
- Recruitment methods
- Main study conclusions
- Funding sources
- Potential conflicts of interest

 Table S5. Standardised affective state measures.

Daily mood or affect measure	Study incorporating measure, Author (Date)
Affect Regulation Checklist (ARC) [<u>113]</u>	[114]
	Adapted ARC items for daily emotion
	dysregulation
Altman Self-Rating Mania Scale (ASRM) [<u>115</u>]	[<u>116,117]</u>
	For Tseng et al. (2022) mood scores were rated daily (0-6) and ASRM reported at weekly intervals
Beck Depression Inventory-II (BDI-II) [<u>118]</u>	[117]
Daily Life Questionnaire (DLQ). See [<u>119</u>] for measure details	[120]
Daytime Insomnia Symptom Scale (DISS) [<u>3]</u>	[<u>121,122</u>]
Depression, Anxiety, and Stress Scale (DASS-21) [123]	[<u>116]</u>
	For Tseng et al. (2022) mood scores were rated daily (0-6) and DASS-21 reported at weekly intervals
Daily Inventory of Stressful Events (DISE) [124]	[<u>125]</u>
Modified Differential Emotions Scale (mDES) [<u>126]</u>	[127,128]
Mood and Anxiety Symptom Questionnaire (MASQ)	[<u>131,132</u>]
 Mini-MASQ [<u>129</u>] MASQ-SF [<u>130</u>] 	
Multidimensional Mood State Questionnaire (short version) (MDBF) [133]	[<u>134]</u>
Multi-Affect Indicator [<u>135</u>]	[<u>136]</u>
Non-Specific Psychological Distress Scale [<u>137,138]</u>	[<u>139,140]</u>
Positive and Negative Affect Schedule (PANAS) [<u>141]</u>	42 studies used the PANAS (includes studies with adapted or author selected PANAS items)
PANAS-C (Positive and Negative Affect Schedule for Children) [142]	[114,140,145-184]
 PANAS-X (Positive and Negative Affect Schedule-Expanded Form) [143] PANAS-SF (Positive and Negative Affect Schedule-Short Form) [144] 	 PANAS-C [<u>147,173,184</u>] PANAS-X [<u>157,166,175,177,179</u>] PANAS-SF [<u>167,171,175</u>]
Patient Health Questionnaire-4 (PHQ-4) [<u>185]</u>	
	[<u>186,187]</u>
	[<u>186,187]</u> [<u>189]</u>
Patient-Reported Outcomes Measurement Information System (PROMIS) [188]	
Patient-Reported Outcomes Measurement Information System (PROMIS) [188] Pleasantness Scale [190]	[189] [191] The Profile of Mood States (POMS) items were
Patient-Reported Outcomes Measurement Information System (PROMIS) [188] Pleasantness Scale [190]	[<u>189]</u> [<u>191]</u>
Patient-Reported Outcomes Measurement Information System (PROMIS) [188] Pleasantness Scale [190] Profile of Mood States (POMS) [192]	[189] [191] The Profile of Mood States (POMS) items were used in 9 studies [175,194-201] (includes four studies with adapted or author selected POMS items)
Patient-Reported Outcomes Measurement Information System (PROMIS) [188] Pleasantness Scale [190] Profile of Mood States (POMS) [192]	[189] [191] The Profile of Mood States (POMS) items were used in 9 studies [175,194-201] (includes four studies with adapted or author selected POMS items) One study [198] included the short form version





Table S6. Number and timing of self-report assessments.

Author (Date)	Study length	Assessment tool	Timing of daily assessments	Self-reported ratings of sleep and affect
Totterdell et al. (1994) [<u>205]</u>	14 days	Electronic pocket computer (Psion plc., London, UK)	Sleep diary (morning) & auditory reminder every 2 hours during waking (mood)	Separated ratings
Jones and Fletcher (1996) [<u>206]</u>	21 days	Paper & pencil questionnaires	Completed daily measures each evening. Participants also contacted by telephone during the study	Same time ratings
Tzischinsky et al. (2001) [<u>207</u>]	3 days (actigraphy for 5-7 days)	Paper & pencil questionnaires (with beeper)	Participants contacted 3 times via beepers at different times during the day	Separated ratings (Actigraphy only)
Zohar et al. (2005) [<u>176</u>]	3 days (actigraphy for 5-7 days surrounding nightshifts, every 6 months. This covered the first 2 years of medical residency)	Paper & pencil questionnaires	Participants received 3 phone-call reminders at random times during their workday to complete study measures (asked to complete measures within 15 mins)	Separated ratings
Fuligni and Hardway (2006) [<u>195]</u>	14 days	Paper & pencil diaries (with electronic time & date stamper)	Daily diaries completed at home every night before going to bed. Participants contacted by telephone once per week as a reminder to complete diaries	Same time ratings
McCrae et al. (2008) [<u>160]</u>	14 days Paper & pencil diaries Completed daily measures every morning		Completed daily measures every morning	Same time ratings
Galambos et al. (2009) [<u>153</u>]	14 days	Online (web-based checklists)	Web-based checklists completed daily before going to sleep each night. The checklist was available from 6 p.m. until noon the next day	Same time ratings
Cousins et al. (2011) [<u>147]</u>	8 days	Telephone interview (phone-call)	Participants received phone-call 12 times between 4 p.m. Friday and 10 p.m. Monday (24 calls in total over 2 weeks). EMA and sleep assessments collected during periods when participants were not in school	Separated ratings (Actigraphy only)
Gershon et al. (2012) [<u>155]</u>	56 days	Paper & pencil diaries (time-stamped)	Sleep diary (morning) and affect diary (evening before bedtime). Participants called a voice mailbox after completion of each diary (morning and evening) to obtain a time-stamped record of completion	Separated ratings
Talbot et al. (2012) [<u>198]</u>	7 days	Telephone (voicemail to record answer)	Sleep and mood measures completed via telephone at home by calling a voicemail box to record answers. Sleep diary and mood completed in morning (on waking) and a second mood response in evening	Same time ratings

de Wild-Hartmann et al. (2013) [<u>208]</u>	5 days	Paper & pencil questionnaires (digital wristwatch for ESM 'beep')	Sleep questionnaire completed on awakening (morning part) and prior to sleep (evening part). Positive and negative affect (ESM) rated 10 times each day via paper and pencil booklet. Digital wristwatch programmed to emit a signal ('beep') at an unpredictable moment in each of ten 90-mins time blocks between 07:30 and 22:30 every day	Separated ratings
Lev Ari and Shulman (2013) [<u>196]</u>	7 days	Online questionnaires (website daily log)	Participants completed daily diary questionnaires every day through a secure online website (7 a.m. – Midnight)	Same time ratings
Ong et al. (2013) [<u>125]</u>	7 days	Paper & pencil diaries and telephone interviews	Paper and pencil diaries completed daily. Daily positive affect reported through telephone interview each evening (10-15 mins)	Separated ratings
Doane and Thurston (2014) [<u>151]</u>	4 days	Paper & pencil diaries	Paper and pencil diaries completed 5 times a day (15 diary entries in total). Completed on waking (morning), 30 mins after waking, 2 randomly selected times during the day and one entry before bed	Separated ratings
Garcia et al. 2014) [<u>154]</u>	7 days	Mobile phone (SMS text message through 'YEMAS' Youth Ecological Momentary Assessment System)	SMS text of study questions 4 times each day (morning, after school, late afternoon, and evening; 28-44 questions per day). Each text was an individual question e.g. sleep quality, positive / negative mood	Separated ratings
Kalmbach et al. (2014) [<u>157</u>]	14 days	Online questionnaires (web-delivered electronic questionnaires on home computer)	Electronic questionnaires completed daily on home computer each morning (upon waking)	Same time ratings
「akano et al. 2014) [<u>172</u>]	7 days	Online questionnaire (via email link on mobile phone)	Participants received 8 daily emails on mobile phone between 8 a.m. and 12 a.m. Each email contained a link for the online questionnaire. Study days were divided into 8 intervals of 120 mins; e-mails were sent once for each interval with semi-random timing	Separated ratings (Actigraphy only)
Wrzus et al. (2014) <u>209]</u>	9 days	Online questionnaire (on Nokia E50 mobile phone)	Mobile phones (Nokia E50) were used to prompt participants 6 times a day to complete questionnaires; the 6 assessments occurred in 2-hour intervals with the exact time randomised. Participants chose between 6 a.m. and noon, when the first assessment (sleep duration) should occur	Separated ratings
Fortier et al. (2015) [<u>152</u>]	14 days	Electronic questionnaire & 'Apple- application' developed for study (completed on personal electronic device or device supplied by researchers)	Questionnaires completed at the end of the day (interval- contingent) and after physical activity (event-contingent) on electronic device	Same time ratings
Li et al. (2015) [<u>120]</u>	42 days	Smartphone app with EMA prompts	Smartphone app prompted questionnaire response at participants' preferred time each day (1 hour window allocated and 2-3 mins to complete questionnaire)	Same time ratings
Simor et al. (2015) [<u>169]</u>	7 days	Paper & pencil questionnaires	Sleep quality reported in morning (upon waking) and 8 hours after awakening participants rated current affect	Separated ratings
van Zundert et al. (2015) [<u>210]</u>	6 days	Smartphone app ('MyExperience') with signal prompt & reminders	Smartphones sent 'buzzing' signals 9 times a day at random time points during 90-mins intervals to complete questionnaires. Standard morning (sleep items) and evening questionnaires were also completed daily. Smartphones sent reminder signals every 2 mins until questionnaire was completed (maximum 3 reminders). After the third reminder (8 mins after first signal) the questionnaire was no longer available	Separated ratings

Konen et al. (2016) [<u>211]</u>	31 days	Smartphone app (with phone call prompt)	Affect was measured 4 times a day and sleep reported in the morning via smartphone app. Phones rang 4 times a day in school and at home to complete measures: 8:50 a.m. (Occasion 1), 11:25 a.m. (Occasion 2), 3 p.m. (Occasion 3), and 7 p.m. (Occasion 4)	Separated ratings
McCrae et al. (2016) [<u>159</u>]	7 days	Paper & pencil diaries	Sleep diaries and affect completed once each morning	Same time ratings
Reis et al. (2016) [<u>134]</u>	10 days (2 work weeks)	Smartphone app (movisensXS, Version 0.4.2453, movisens GmbH, Karlsruhe, Germany) with signal alarm prompts	Smartphone app prompted 3 'alarm' signals per day: in the morning before work (sleep quality), at noon (affect), and after work (affect)	Separated ratings
Tavernier et al. (2016) [<u>212]</u>	3 days	Paper & pencil diaries	Morning diary (sleep) completed within 30 mins of waking and evening diary (daily experiences) before bedtime	Separated ratings (only reported actigraphic sleep outcomes in final analyses)
Blaxton et al. (2017) [<u>145</u>]	56 days	Paper & pencil diaries	Daily sleep diary (upon waking) and affect measures (in evening)	Separated ratings
Bouwmans et al. (2017) [<u>146]</u>	30 days	Electronic device & electronic diaries (PsyMate device; PsyMate BV, Maastricht, The Netherlands)	Sleep (morning) and affect 3 times a day using electronic diaries and PsyMate alarm (30 mins prior). Assessment times were fixed (adjusted to participant chronotype) with 6 hour intervals in between; on average timings were late morning (10 a.m.) afternoon (4 p.m.) and evening (10 p.m.)	Separated ratings
Chiang et al. (2017) [<u>194]</u>	15 days (first 8 days with actigraphy)	Paper & pencil diaries (with security coded, pre-programmed time stampers & booklets)	Sleep diary (morning) and emotional experiences (evening prior to bed) with time-stamp recordings. Sleep self-reported for 8 days and affect across 15 days	Separated ratings (only reported actigraphic sleep outcomes in final analyses)
Flueckiger et al. (2017) [<u>191</u>]	Study 1 (33 days) & Study 2 (30 days; actigraphy subsample for 7 days)	Online surveys (via email link)	Online surveys sent at 5 p.m. via email (survey links accessible for the next 24 hours)	Same time ratings
Kalmbach et al. (2017) [<u>131</u>]	14 days	Online questionnaire (web-delivered on home computer)	Daily online questionnaires (web-delivered) completed in morning (upon waking)	Same time ratings
Lauritsen et al. (2017) [<u>213]</u>	28 days	Online surveys ('Daybuilder' webpage on personal computer or Mac) & SMS texts	Sleep recorded once and mood twice (morning and evening) each day. SMS texts sent as reminder to complete surveys on 'Daybuilder online webpage'. Mood values could also be entered through SMS	Separated ratings
McGrath et al. (2017) [<u>161]</u>	5 days	Online surveys or paper & pencil	Daily surveys completed online or via paper and pencil. Positive affect & sleep quality assessed in morning	Same time ratings
Sin et al. (2017) [<u>170]</u>	8 days	Telephone interview (phone call)	Telephone interviews (evening) for emotions that day and sleep on the prior night	Same time ratings
Cox et al. (2018) [<u>214]</u>	7 days	Online surveys ('REDCap' Research Electronic Data Capture web-based platform via email links)	Sleep (morning) and anxiety 3 times each day in morning (8 a.m.) afternoon (2 p.m.) and evening (8 p.m.) via email link. Surveys completed within 2 hours of receipt on secure web-based platform (REDCap)	Separated ratings
da Estrela et al. (2018) [<u>148]</u>	6 days	Electronic daily diaries (one telephone interview on the first day)	Daily electronic diaries completed at same time each evening. On the first day, the daily diary was a semi structured interview over the phone	Same time ratings

Kalmbach et al. (2018) [<u>215]</u>	2 months (pre-internship) & 6 months (during internship year)	Mobile phone SMS text & web-based mood-monitoring platform (Mood 247.com; Remedy Health Media LLC, New York, NY)	Daily automated SMS text (evening) at 8 p.m. to record daily mood ratings	Separated ratings (Actigraphy only)
Slavish et al. (2018) [<u>197]</u>	14 days	Smartphone surveys (customised interface)	Daily sleep survey (morning) upon waking and emotions experienced that day (evening) within 1 hour before bedtime	Separated ratings
George et al. (2019) [<u>114]</u>	Study 1 (10 days) & Study 2 (14 days)	Smartphone app ('MetricWire') with EMA notification prompts	Affect reported in each survey signal across both studies. In study 1, participants completed 5 surveys every 4 hours; one in the morning (7 a.m. sleep & affect items), three during the daytime (affect items at 11 a.m., 3 p.m., & 7 p.m.), and one in the evening (affect at 11 p.m.). In study 2, participants completed 3 daily surveys: morning (sleep & affect), afternoon (affect), and evening (affect)	Separated ratings
Leger et al. (2019) [<u>158]</u>	6 days	Mobile phone device to complete EMA surveys (Android device provided by the DEWS study 'Daily Experiences and Well-being Study')	Sleep (morning) reported upon waking and mood every 3 hours during waking hours (roughly the same time each day; an average of 20 within-day surveys)	Separated ratings
Li et al. (2019) [<u>216]</u>	14 days	Smartphone (Motorola Droid RazrM) with EMA prompts	Once-daily sleep (morning) and twice-daily mood (morning & evening) surveys. Mood survey auto-generated by smartphone at random times (4-hour time windows) twice per day. Participants could choose schedule for the 4-hour window based on their sleep habits	Separated ratings
Merikangas et al. (2019) [<u>217</u>]	14 days	Electronic personal digital device (Tungsten E2 PDA; Palm) & mobile app (Android platform)	Participants completed EMAs 4 times per day (fixed), with an approximately 4-hour delay between assessments. Initial study completed on personal digital assistant but since 2013 EMA was delivered using an Android mobile app	Separated ratings (Actigraphy only)
Parsey and Schmitter- Edgecombe (2019) [<u>218]</u>	7 days	Mobile phone (phone-based self- report questions & automated call system)	Phone-based EMA completed 4 times each day using numeric phone keypad. Participants received an automated phone call to complete surveys at a random time within 4 time blocks: morning (9:30-11:30 a.m.), midday (12:30-2:30 p.m.), afternoon (3:30-5:30 p.m.), and evening (6:30-8:30 p.m.). System re-dialled 10 mins later if no response (2 redials within each block)	Separated ratings (Actigraphy only)
Triantafillou et al. (2019) [<u>219</u>]	42 days	Smartphone app (Android app, Purple Robot, CBITs TECH Website, 2015)	Participants responded to sleep and affect surveys in morning (9 a.m.). Mood recorded 2 more times at 3 p.m. & 9 p.m. Responses could be delayed until later and survey times adjusted within a 2- hour window	Separated ratings
Williamson et al. (2018) [<u>136]</u>	10 days (2 work weeks)	Smartphone app ('MetricWire') with EMA notification prompts	Signal-contingent smartphone ESM surveys completed mid- morning (sleep & mood) during workday	Same time ratings
Das-Friebel et al. (2020) [<u>149]</u>	14 days	Smartphone app ('mEMA' Mobile Ecological Momentary Sampling) with EMA prompt notifications	Smartphone prompts 6 times each day to record sleep (every morning at 8 a.m.) and affect (remaining 5 notifications). Affect items randomly sent between 8 a.m. and 10 p.m. (on weekdays) or 10 a.m. and 10 p.m. (on weekends) with at least 1 hour between prompts. Each survey had a 20 mins time window	Separated ratings
O'Neill et al. (2020) [<u>177</u>]	32 days	Online surveys (via email link)	Survey links emailed to participants once daily and were required to be completed between 5 p.m. and 11 p.m. Shift workers or participants with irregular hours completed surveys during a 5 a.m. to 11 a.m. time window	Same time ratings

Peltz et al. (2019) [<u>187]</u>	7 days	Online survey platform (time-stamp diary entries)	Morning diary (sleep duration & quality) completed within 1 hour of waking and evening diary (mood items; depressive & anxiety symptoms) completed within 1 hour of going to sleep	Separated ratings
Ryuno et al. (2021) [<u>164]</u>	56 days	Paper & pencil questionnaires	Affect surveys completed each evening (before sleep)	Separated ratings (Actigraphy only)
Sayre et al. (2021) [<u>165]</u>	8 days	Telephone interview (phone call)	Phone-call interview (evening) at 7 p.m. (only workdays were analysed for the study)	Same time ratings
Sin et al. (2020) [<u>220]</u>	8 days	Telephone interview (daily phone call with computer-assisted telephone interview programming)	Daily interviews by telephone (evening)	Same time ratings
Wen et al. (2020) [<u>221]</u>	7 days	Mobile phone (WeChat platform) & online survey link	Affect items recorded 5 times each day with surveys sent via WeChat platform. Participants had 1 hour to complete each online survey link	Separated ratings (Actigraphy only)
Bean and Ciesla (2021) [<u>132</u>]	14 days	Online questionnaires (completed on smartphone)	Online questionnaires completed on smartphone twice per day. Surveys sent in morning (6 a.m.) completed upon waking and in the evening (8 p.m.) completed 2 hours before bedtime	Separated ratings
Díaz-Morales and Parra-Robledo (2021) [<u>150]</u>	7 days	Paper & pencil diaries (with email reminders)	Sleep and mood diaries completed in evening before sleep with email reminders	Same time ratings
Difrancesco et al. (2021) [<u>222]</u>	14 days	Smartphone electronic diary	Smartphone EMA items sent 5 times each day (every 3 hours). Sleep reported in first assessment of the day	Separated ratings
Fang et al. (2021) [<u>223]</u>	2 months (prior to medical internship) & 1 year (during internship). Actigraphy (minimum of 7 days)	Smartphone app ('Intern+' developed by Remedy Health Media LLC, New York) with push notifications	Daily push notifications from smartphone app to assess mood at user-specified time (between 5 - 10 p.m.)	Separated ratings (Actigraphy only)
Jones et al. (2022) [<u>156]</u>	7 days	Online surveys ('Survey Signal' platform sent Qualtrics link via SMS / text messages to phone)	Survey links (via SMS text) sent 8 times each day: survey upon waking (sleep & affect items sent at 6 a.m. and available until 11 a.m.), evening survey prior to bed (health behaviour items sent at 8:30 p.m. and available until 2 a.m.) and 6 ambulatory surveys (affect items) sent at semi-random 2 hour intervals. No reminder messages for morning & evening surveys but the 6 ambulatory surveys had reminder texts after 25 mins with links expiring after 30 mins	Separated ratings
Lee (2022) [<u>224]</u>	8 days	Telephone interview (phone call)	Diary phone interviews at end of day (sleep & well-being measures)	Same time ratings
Messman et al. (2021) [<u>162]</u>	7 days	Online surveys ('REDCap' Research Electronic Data Capture web-based platform via email links)	Survey link for sleep & affect diaries (via email in morning) with 2 reminders sent at 3 hour intervals if incomplete. Participants messaged by researchers again if diaries not completed by noon	Same time ratings
Minaeva et al. (2021) [<u>225</u>]	5 days	Paper & pencil questionnaires (digital wristwatch for ESM 'beep')	Digital wristwatch signal ('beep') to record affect at random times within ten 90-mins time blocks (between 7:30 a.m. and 10:30 p.m.). Sleep diary (morning)	Separated ratings

Neubauer et al. (2021) [<u>226</u>]	Study 1 (28 days) & Study 2 (21 days)	Smartphone surveys with prompts	Study 1: smartphone survey prompts 4 times each day (fixed times). Morning time window (6–7:50 a.m.), late mornings (9:50 a.m.), afternoons (3 p.m. – 5:15 p.m. or 4 p.m. –5:45 p.m. on longer school days), and evenings (6:30–8:30 p.m.). Sleep items completed in morning surveys and affect items in all 4 survey prompts.	Separated ratings
			Study 2: smartphone survey prompts 3 times each day outside of school context. Morning surveys scheduled during week (at 6:45 a.m. to 7:50 a.m.) and weekends (at 6:45 a.m. to 9:15 a.m.), afternoon and evening survey timings could be chosen by parent with an earlier option (3 p.m. to 5:15 p.m. and 6 p.m. to 8:30 p.m.) or later option (4 p.m. to 6:15 p.m. and 7 p.m. to 9:30 p.m.). Sleep items completed in morning surveys and affect items in all 3 survey prompts	
Shen et al. (2022) [<u>166</u>]	28 days	Smartphone app ('MetricWire') with EMA notification prompts	Sleep reported each morning (7 a.m. to 2:30 p.m.) and affect each afternoon (3:30 p.m. to 7 p.m.) via smartphone app	Separated ratings
Shi et al. (2021) [168]	7 days	Mobile phone (WeChat platform) & online survey link	Affect recorded 5 times each day (9 a.m. to 8 p.m.) at random intervals of 120–240 mins via online survey link / WeChat (1 hour to complete each survey)	Separated ratings (Actigraphy only)
Simor et al. (2021) [<u>227</u>]	14 days	Online questionnaires & email reminders	Sleep items upon waking (questionnaire available from 5 a.m. to 12:30 p.m.) and mood measures before bedtime (available from 6 p.m. to 3 a.m.). Reminder emails also sent	Separated ratings
Sin et al. (2021) [<mark>228</mark>]	8 days	Telephone interview (phone call)	Diary phone interviews at end of day (daily sleep & well-being measures)	Same time ratings
Sun-Suslow et al. (2021) [<u>229]</u>	14 days	Smartphone EMA prompts (Samsung Galaxy with 4G Android Operating System)	Smartphone EMA surveys (4 each day) randomised at 3 hour time intervals and adjusted to participant sleep-wake schedules. Sleep items in first EMA survey (morning) and mood reported at each prompt	Separated ratings
Vigoureux and Lee (2021) [<u>230]</u>	14 days	Smartphone app (RealLife Exp, LifeData Corporation) with notifications	Smartphone surveys 4 times per day (upon waking, before lunch, afternoon & before bedtime). Morning sleep survey was event- based (user initiated waking survey) and remaining 3 surveys were notification-initiated (time-based) to report momentary sleepiness & affect	Separated ratings
			For day shift nurses, notifications were scheduled for 11 a.m., 3 p.m., and 9 p.m. For night shift nurses, notifications were scheduled for 11 p.m., 3 a.m., and 9 a.m. Surveys expired after 1 hour	
Wang et al. (2021) [<u>174]</u>	7 days	Online survey (via email & optional SMS text reminder)	Online survey sent in morning (8 a.m. for sleep & affect items) and in evening (8 p.m. for affect)	Separated ratings
Wieman et al. (2022) [<u>231]</u>	7 days	Online surveys ('Qualtrics' sent via SMS text)	Survey links SMS texted 3 times each day (at 8 a.m., 2 p.m. and 8.pm). Sleep items completed in morning survey and affect at each EMA time point	Separated ratings
Wong et al. (2021) [<u>175</u>]	4 days (actigraphy for 7 days)	Electronic personal digital device (PDA; Palm Z22, software: Satellite Forms)	Personal digital device (PDA) prompted participants to complete affect items every 1 hour throughout the day. PDA also used to indicate when participant awoke. During EMA study participants telephoned 4 times for technical support	Separated ratings

Chan et al. (2022) [<u>232]</u>	30 days	Online diary	Daily diaries sent to participants at 9 a.m. (sleep & anxiety items) and 11 p.m. each day (anxiety items)	Separated ratings
Dickens et al. (2021) [<u>204]</u>	28 days	Online surveys ('Survey Signal' platform sent Qualtrics link via SMS / text messages to phone)	Survey links sent in morning for sleep (upon waking) and end of the day for affect items (evening)	Separated ratings
Liu et al. (2022) [<u>139]</u>	8 days	Telephone interview (phone call) & sleep diary	Daily evening phone calls to report on affect and completed daily sleep diary	Separated ratings
Narmandakh et al. (2021) [<u>233]</u>	30 days	Online questionnaire (SMS text link to online platform used in Dutch study, "How Nuts Are The Dutch")	SMS text sent 3 times each day (with 6 hour intervals) for online questionnaires. Text time points were adjusted for each participant sleep-wake schedule and questionnaires available for 1 hour. Affect was measured 3 times at each EMA prompt and sleep reported in morning	Separated ratings
Parsons et al. (2022) [<u>234]</u>	7 days	Smartphone app ('MetricWire') with EMA notification prompts	Smartphone notifications sent 4 times each day. First survey sent at random timepoint between 10 a.m. and 12 p.m. (included sleep and emotion regulation questions). Remaining 3 surveys sent at pseudo-random times (at least 2 hours apart) between 1 p.m. and 10 p.m. (included emotion measures). Links to surveys expired after 20 mins	Separated ratings
Song et al. (2021) [<u>171]</u>	10 days (2 work weeks)	Mobile phone (WeChat platform) & online survey link	Online daily survey link sent in morning (9 a.m. for sleep items) and evening (8:30 p.m. for affect) on WeChat. 1 hour window to complete each survey with reminders sent after 30 mins if incomplete	Separated ratings
Sperry & Kwapil (2022) [<u>235]</u>	14 days	Smartphone app with ESM notifications	ESM affect survey sent 8 times each day at random times between 10 a.m. to 10 p.m. (within 90 mins stratified intervals). Survey notifications completed within 10 mins. Sleep diaries sent at 5 a.m. and available for completion until the end of that day	Separated ratings
Ying et al. (2021) [<u>236]</u>	7 days	Online surveys ('Qualtrics' link via email)	Morning survey link (sleep items) emailed at 7 a.m. and evening surveys (current-day affect) emailed at 7 p.m.	Separated ratings
Harris et al. (2022) [<u>127</u>]	7 days	Online diaries (via email link)	Online sleep diary emailed in morning (4 a.m.) and completed upon waking with reminder (1 p.m.). Affect survey in evening (6 p.m.) and completed before bed with reminder email (1 a.m.)	Separated ratings
Hruska et al. (2022) [<u>189]</u>	8 days	Online surveys ('REDCap' Research Electronic Data Capture web-based platform via email links)	Daily surveys (sleep and anger emotions) emailed at 6 a.m. each day. Participants (emergency medical workers) completed surveys upon receipt if they had already worked or if they were not working that day. If working later in the day participants completed surveys after shift	Same time ratings
Lee et al. (2023) [<u>237]</u>	10 days	Online surveys (via SMS text completed on smartphone)	SMS text messages sent with an online survey link. Sleep disturbance reported in morning (9 a.m.) and mood / sleepiness 4 times each day (9 a.m., 1 p.m., 5 p.m., 9 p.m.)	Separated ratings
Marcusson- Clavertz et al. (2022) [<u>238</u>]	 ESCAPE (14 days) SHADE (7 days) SAWM (7 days) 	 ESCAPE study - smartphone with ESM 'beep' SHADE study - palmtop computer SAWM Study - palmtop computer 	 ESCAPE – morning sleep survey (self-initiated upon waking) and 5 random ESM surveys (affect items) each day. Smartphone 'beep' at semi-random times (interval-based) adjusted to participant's typical waking time SHADE – morning sleep survey (upon waking) and 5 random surveys (affect items) each day at roughly 3-hour intervals SAWM – morning sleep survey (upon waking) and 5 random surveys (affect items) each day based on participants' self- reported wake time 	Separated ratings

Mousavi et al. (2022) [<u>163]</u>	3 months	Smartphone app (Android EMA app) with reminders sent via SMS text, email, or phone call	Daily affect (evening) via EMA smartphone app	Separated ratings (Actigraphy only)
Newman et al. (2022) [<u>128]</u>	21 days total (1 week of assessments at 3 study time points)	Paper & pencil and email diaries	Morning questionnaires completed on paper (sleep diary & affect) and evening diary (affect) sent by email at participants' preferred time (around 8 p.m.)	Separated ratings
Patapoff et al. (2022) [239]	11 days (actigraphy for 14 days) [sample included individuals with both actigraphy and EMA data for 2–11 days. Actigraphy device worn for 14 day period in annual assessments; some had data from multiple (2–4) years]	Smartphone EMA and sleep diary	EMA mood surveys sent 3 times each day (morning, afternoon, evening – surveys sent sporadically in intervals specified by participant). Sleep quality measured daily as part of the EMA survey and participants also completed a sleep diary	Separated ratings
Peltz and Rogge (2022) [<u>186</u>]	7 days	Online survey (via email)	Sleep quality (morning diaries) and mood (evening diaries) sent via email each day	Separated ratings
Roberts et al. (2022) [<u>240]</u>	14 days	Online diary (via email links on Google forms)	Morning diary upon waking (completed within 1 hour or so) and evening diary (within 1 hour or so before bed) assessed sleep and mood. Email reminders if missing diary entries	Separated ratings
Shi and Wang (2022) [<u>167]</u>	10 days	Online survey (WenJuanXing platform)	Daily diaries twice each day on workdays with reminders sent by researchers. Morning diary upon waking (sleep & affect prior to work) and diary at end of workday (affect)	Separated ratings
Titone et al. (2022) [<u>117]</u>	20 days	Mobile phone SMS text	Mood measured 3 times daily (morning, afternoon, evening) via text message	Separated ratings (Actigraphy only)
Tseng et al. (2022) [<u>116]</u>	2 – 398 days (average of 3 months)	Smartphone app (also collected active & passive data e.g. GPS data as indicator of movement activity)	Daily sleep and mood recorded in smartphone app (no information on number and timing)	Separated ratings
Wang et al. (2023) [<u>173]</u>	29 days	Daily diary on 'internet-capable devices' (reminders via email or SMS)	Daily diary (sleep & affect) completed between 5 p.m. and midnight with 2-4 reminders each day via email or SMS	Same time ratings
Yip et al. (2022) [<u>199]</u>	14 days	Electronic tablet for daily diary	Daily diary (sleep & mood) completed in evening before bed	Same time ratings
Kouros et al. (2022) [<u>241]</u>	7 days	Paper & pencil questionnaires	Daily diary (sleep & mood) completed in evening	Same time ratings
Lucke et al. (2022) [<u>242]</u>	7 days	Electronic tablet (Apple iPad) and paper & pencil questionnaire versions (for a small number of participants). Phone call to clarify any questions on second day	Morning survey upon waking (self-initiated event-based; for affect & sleep quality). Momentary affect every 2-3 hours (at 10 a.m., 1 p.m., 4 p.m., 7 p.m., & 9 p.m.) prompted by iPad (leeway of 30 min before and 2 hr after prompted times)	Separated ratings & same time* *morning survey had affect & sleep quality
Sheppard et al. (2022) [<u>183]</u>	10 days* *workdays over 2 consecutive work weeks	ESM tool (digital but not specified)	Daily surveys at noon (sleep & affect) sent at 11 a.m. (available until 2 p.m.)	Same time ratings
Barber et al. (2023) [<u>140]</u>	8 days	Telephone interview (phone call)	Telephone interview in evening (affect & sleep)	Same time ratings

Chachos et al. (2023) [<u>179</u>]	7-28 days*	Smartphone app ('MetricWire') with EMA notification prompts	STEPS: sleep survey available (7 a.m. to 2:30 p.m.) & affect (3:30 p.m. to 7 p.m.)	Separated ratings
	*STEPS (28 days), ACES (12 days), DESTRESS (7 days)		ACES / DESTRESS: sleep survey available (11 a.m. to 3 p.m.) & affect three times daily from 11 a.m. to 3 p.m. (morning), 3.30 p.m. to 7:30 p.m. (afternoon) & 8 p.m. to 02:00 a.m. (evening)	
			*only afternoon survey analysed	
Hachenberger et al. (2023) [<u>180]</u>	14 days	Smartphone app ('movisensXS', Version 1.5.13)	Short surveys (2–3 mins) sent 7 times per day. First survey prompt (affect & sleep) sent (8-9 a.m. on weekdays or 9-10 a.m. on weekends). Next 5 survey prompts (affect over past 1.5 hrs) sent	Separated ratings & same time*
			(10:30 a.m. to 7:30 p.m. on weekdays & 11:30 a.m. to 7:30 p.m. on weekends). Last survey prompt at end of day (affect) sent (9 -10 p.m.). Prompts sent at random times within intervals. Gap of at least 90 mins between two adjacent prompts. Surveys available for 30 mins	*morning survey had affect & sleep
Jordan et al. (2023) [<u>243]</u>	14 days	Electronic diaries (REDCap)	Sleep diary & mood (morning) upon waking	Same time ratings
Kirshenbaum et al. (2023) [<u>244]</u>	3-14 days*	Smartphone app ('MetricWire') with EMA notification prompts	Morning (sleep & affect) prompt, afternoon (affect) & night (affect)	Separated ratings & same time*
	*at least 3 days of usable actigraphy data			*morning survey had affect & sleep
Master et al. (2023) [<u>200]</u>	7 days* *at least 3 valid actigraphy	Electronic diaries (via authenticated web-link)	Electronic diary (evening) after 7 p.m. (before going to sleep)	Separated ratings (Actigraphy only)
	days			
McGowan et al. (2023) [<u>201]</u>	28 days	Smartphone app ('LifeData, RealLife Exp')	Morning sleep survey (8 a.m.) & evening survey (6 p.m.) with prompt reminders. Mood / emotions twice a day	Separated ratings
Ng et al. (2023) [<mark>245</mark>]	28 days (Study 1) & 14 days (Study 2)	Smartphone app ('Z4IP EMA')	EMA twice daily (mood & sleepiness) – during post-wake window (8 a.m. to 1:59 p.m.) & pre-bedtime window (8 p.m. to 23:59 p.m.)	Separated ratings (Actigraphy only)
Ohana and Fortin (2023) [<u>181</u>]	8-10 days	Online (web-based Qualtrics survey)	Daily diary questionnaire (end of each working day)	Same time ratings
Punna et al. (2023) [246]	7 days	Mobile phone (with web-based application adapted for mobile device)	Timing varied (between 1 p.m. and 5 p.m.) with 4 hours to answer & reminder sent	Separated ratings
Rea et al. (2023) [<u>182]</u>	7 days	Online (emailed via SurveyMonkey)	Survey links emailed at 8 p.m. in evening and available until 12 p.m. next day. Reminder emails sent at 11 p.m.	Same time ratings
Sell et al. (2023) [<u>247]</u>	14 days	Online (emailed surveys)	Study 1 - Emailed questionnaires at 6 p.m. (available until midnight to complete) for affect that day & sleep	Same time ratings
			Study 2 - Emailed questionnaires at 4 p.m. (available until midnight to complete) for affect & sleep	
Song et al. (2023) [<u>248]</u>	28-55 days*	Mobile phone (SMS text message)	SMS text to complete survey questions 4 times per day (randomised schedule every 4 hours). First survey for sleep	Separated ratings
Xie et al. (2023) [<u>249]</u>	*average days 33.69 (4.17) 7 days	Daily diary (unclear if electronic)	Affect & sleep (once a day)	Not specified

Baglioni et al. (2024) [<u>178</u>]	5 days	Smartphone app ('movisensXS')	Sleep diaries (morning within 30 mins of waking & evening before bed). Affect in morning, evening and 4 random times during day	Separated ratings & same time*
				*morning survey had affect & sleep
Collier Villaume et al. (2024) [<u>250]</u>		Diaries (not specified if digital)	EMA (affect) recorded 6 times daily	Separated ratings (Actigraphy)
Dong et al. (2024) [<u>251]</u>	7 days	Electronic diaries (with prompt)	Participants prompted to fill out the daily diary / surveys within 24 hours. Mood upon awakening	Separated ratings (Actigraphy)
Evans et al. (2024) [<u>252]</u>	9 days	Smartphone app (study smartphone with custom EMA app)	Weekend surveys (8 PA/NA prompts at quasi-random intervals between 10 a.m. to 10 p.m.). Weekdays (4 PA/NA prompts, including one in morning & 3 at quasi-random intervals between 4p.m. to 9:30 p.m.). Sleep diary was user-initiated	Separated ratings
Kwan et al. (2024) [<u>253]</u>	14 days*	Online (web-based daily survey)	Morning survey (9 a.m.) each weekday (sleep & affect). Afternoon survey (4 p.m.) each weekday (affect). Reminder after 30 mins	Separated ratings & same time*
	*10-11 weekdays			*morning survey had affect & sleep
Lee et al. (2024) [<u>254]</u>	8 days	Telephone interview (phone-call)	Phone-call in evening for daily experiences	Same time ratings
Meigs et al. (2024) [<u>255]</u>	7 days	Smartphone (via 'ReTAINE' platform)	Surveys sent 3 times a day: morning (sleep & mood) afternoon (mood), evening (mood)	Separated ratings & same time*
				*morning survey had mood & sleep
Peng et al. (2024) [<u>256]</u>	27-50 days*	Online surveys (via Wenjuanxing platform)	Surveys sent at 8 p.m. (deadline to respond by 3 a.m. next day)	Same time ratings
	*average 47.66 days (SD = 4.28)			
Poon et al. (2024) [<u>122]</u>	7 days	Smartphone app (in-house app, 'Longitudinax' version 1.4.2)	Push notifications (mood) from app at 4 time-points (9 a.m., 1 p.m., 5 p.m., & 9 p.m.). Reminder prompt 5 mins later (up to two reminders within 15 mins each time)	Separated ratings (Actigraphy only)
Wescott et al. (2024) [<u>257</u>]	3–17 days	Electronic diaries	Morning diary (sleep & affect)	Same time ratings
Xie et al. (2024) [<u>184]</u>	7 days	Diaries (not specified if digital)	Affect in morning (6:30 a.m.) & evening (8:30 p.m.). Sleep in morning upon waking	Separated ratings & same time*
				*morning survey had affect & sleep
Zapalac et al. (2024) [<u>258]</u>	35 days* *average 35.20	Smartphone app ('Beiwe™ smartphone app' & research platform)	EMAs twice per day – morning (sleep & mood) at 9.a.m. & evening (mood) at 7 p.m. EMAs distributed on Monday, Wednesday, Friday, and Sunday	Separated ratings & same time*
	(SD = 27.01) days of observation per participant	ματιστη	anu Sunuay	*morning survey had mood & sleep





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