



Hues Within

Methodology

Current rules, calculations, rationales, and limitations

This document explains how Hues Within organizes completed check-ins, user-entered prescription records, and period tracking. It distinguishes implemented product rules from external evidence and does not define or diagnose episodes.

Current input formats

Mood uses an 11-point scale from -5 to +5. Energy, Interest, Need for sleep, Managing everyday life, and Irritability each use three named choices. All check-in questions are optional; a middle choice is not a default answer.

Missing data

Unanswered questions and missing days remain blank in recorded-data views. Only the specific symptoms/changes comparisons described below count a saved check-in with no selected tag as None.

Pattern access

Insights is optional and off until you turn it on. Once enabled, Patterns opens after 30 completed check-ins; Cycle is available from the first records, with separate eligibility rules for its estimates and comparisons.

Intended use

Hues Within is a personal self-tracking and communication support tool. It is not intended to screen for or diagnose a condition, identify clinical episodes, monitor disease progression, predict relapse, assess treatment effectiveness, recommend treatment, or provide emergency support.

METHODOLOGY VERSION Version 1 - 15 October 2026 Version 1 explains the current calculations, report selection and export formats. The thresholds organize personal records; they are not clinical standards.

01 / SCOPE AND DATA

Scope and interpretation

The method is descriptive and personal. It summarizes the person's own records with explicit eligibility rules and the specific tag-list counting convention described below. It is not a validated clinical instrument.

Insights is off by default for new and existing users, in every region. After the required legal choices, the app offers Turn on Insights and Not now; the choice can later be changed in Settings. Activation is separate from sensitive-data consent and Plus access. A purchase or enough recorded days does not turn Insights on. The analysis rules below apply only while Insights is on; their existing history, answered-value, coverage and access requirements still apply.

With the required consent in place, you can keep recording and viewing your records with Insights off. The Insights tab then shows an explanation, History omits derived mood-range interpretation, frequent-tag rankings are not calculated, and new printable reports omit analysis. The Mood question's own slider colors and feedback remain available while answering. Turning Insights off stops new analysis; it does not delete recorded entries or previously created, cached, saved or shared files.

Descriptive. The app reports what was recorded, when it appeared, and what else was recorded on the same or nearby dates.

Personal. Comparisons use the person's selected records or earlier history, not a population norm.

Non-diagnostic. Lower, balanced, and higher are positions on a self-rating scale, not clinical episode labels.

Non-causal. An overlap with sleep, medication, a cycle window, or another answer does not establish cause.

Emotions. Emotion tags are optional descriptions. Personal tags and historical answers remain part of the record; the app does not use them as a diagnostic score.

Units used in calculations

Unit	Definition	Effect on calculations
Calendar day	A date in the person's local calendar.	Used for continuity, date windows, and visible gaps.
Completed check-in	A saved daily record, even if optional questions were skipped.	Counts toward the 30-check-in history gate.
Answered value	A value explicitly selected or entered for one question.	Used for that measure's calculation; the specific symptoms/changes convention below is an exception for derived comparisons.
Exact prescription date	A day-level start date with at least one named medication.	May define a before/after boundary.
Approximate prescription date	A month- or year-level medication record.	May appear in Timeline but cannot define a statistical day boundary.
Missing day	No completed check-in for that calendar date.	Remains a gap and is never imputed as steady, typical, or answered.

Missing answers

All questions, including Mood, begin unanswered. A choice such as 0, Moderate, No, or Balanced is not stored unless the person selects it. Written notes remain visible but are not classified or analyzed.

Current input boundary

`Inputs = completed check-ins + prescription records + period answers`

Explicitly recorded values are used, except for the specific symptoms/changes convention below. Missing numeric or other answers are not replaced with averages or carried forward.

Rationale. A missing answer may reflect skipping, an unfinished check-in or choosing not to record information. Outside the specific tag-list convention below, treating missing answers as a middle value or No would invent data and change denominators.

Specific symptoms/changes convention. Only for Symptoms & side effects and Changes from usual in medication comparisons, Patterns and cycle criteria, every saved check-in in the group is counted. If no tag is selected, the calculation treats that check-in as None, including when the question was skipped, untouched or switched off. Historical records do not identify whether the question was visible. This is a product counting convention, not confirmation that no symptom or change occurred. Days with no saved check-in are excluded. History, Excel and printable reports with Insights off preserve the distinction between a recorded None and an unanswered question. Other questions continue to use their actual answers, including explicit No and zero; their missing answers stay excluded.

02 / RATING SCALE

Rating formats and normalized positions

Mood uses an 11-point scale from -5 to +5, with Balanced at its center. Energy, Interest, Irritability and Managing everyday life use named choices in the Mood section; Need for sleep is recorded in the Sleep section.

Symptoms, Side Effects & Changes is one searchable question with one visibility switch. All is a browsing filter, not a tag type. Pins are preferences, not daily answers. When Insights is on, frequently used tags rank distinct answered days, excluding the edit day; without history, available tags are shown. With Insights off, frequency rankings are not calculated or shown; pins, search and the available tag list remain usable. Pins and tag types stay in local preferences. Symptoms and changes keep separate storage/export/comparison fields. A side-effect label does not establish medication causation.

Custom numeric questions offer -5 to +5 ratings or exact whole-number 0–10 answers. Answer type cannot change after creation; another type requires a new question. Historical type changes are not corrected automatically. Reports are printable documents in Portable Document Format (PDF).

Numeric comparisons normalize an eligible value from 0 to 1. Current three-choice responses use distinct stored category identifiers and chart positions 0, 0.5, and 1. Those positions order the drawing; they do not establish equal clinical distances or make the middle answer healthy or balanced. Named-choice comparisons count each choice separately.

Normalization

`p = clamp((value + 5) / 10, 0, 1)`

On the current scale, -5 gives $p = 0.00$; -2 gives 0.30 ; 0 gives 0.50 ; +2 gives 0.70 ; and +5 gives 1.00 . Legacy records use their own saved minimum and maximum.

Current three-choice questions

Question	First	Middle	Last
Energy	Low	Moderate	High
Interest	None or mild	Moderate	High
Need for sleep	Needed less	Balanced	Needed more
Managing everyday life	Unmanageable	Somewhat manageable	Manageable

Question	First	Middle	Last
Irritability	None or mild	Moderate	High

Older answer formats

Conversion of older records combines older five-position answers into three: the first two positions become the first choice, the middle remains the middle, and the last two become the last choice. Older numeric Energy uses -5 to -2 = Low, -1 to +1 = Moderate, and +2 to +5 = High after scale normalization. Older numeric Irritability first uses the former severity mapping (-5 through 0 = None; +1 = Mild; +2 = Moderate; +3 = High; +4/+5 = Very high), then folds into three. Missing or unreadable answers are not filled in; Mood is unchanged.

This conversion loses original detail. In particular, converting older relative Interest into current interest amount is an approximation, not a validated equivalence. Removed stored answers are cleared for Mind speed, Sociability, Drive and its five subquestions, Sleep routine, Spending, Left home, and Showered. Updated summaries and exports reflect the cleaned records, not an unchanged original scale.

Mood Map color mapping

The Mood Map assigns a color to each whole-number Mood rating. Blank cells represent missing answers and have no mood color.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

Bar labels: -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5.

Rating bands and their uses

Use	Applied to	Lower	Balanced / middle	Higher
Numeric range summaries	Mood and custom -5 to +5 ratings, not custom 0 -10 answers.	$p \leq 0.35$	$0.35 < p < 0.65$	$p \geq 0.65$
Pattern groups	Mood only; used to select days and detect stretches.	-5 to -2	-1 to +1	+2 to +5

Difference in use. Mood groups select days and detect stretches. Current three-choice questions retain their own wording and pictograms; Moderate irritability is not Balanced, and Manageable is not an adverse upper-range state. Neither color nor a chart position is a diagnosis.

Rationale. The -5 to -2, -1 to +1, and +2 to +5 bands are product-defined descriptive ranges. They support navigation and comparison and are not validated clinical cutoffs. The directional display moves from violet through blue and green, then amber to red. Amber is an intermediate upper-range color, not a fourth range.

Interpretation

Pattern group = function of recorded mood only

Energy and activation do not determine the group. Balanced means nearer 0 on the person's mood scale; it does not mean clinically stable, symptom-free, or well.

Mood Map and range controls

Element	Current rule	Reason
Calendar	Monday-Sunday week rows across the selected date range.	Preserves calendar order and keeps blank dates visible.
Mood cell	Uses the answered mood value and its corresponding directional color.	Shows the recorded rating without relabeling it as a diagnosis.
Period marker	Shown only when <code>period = Yes</code> was explicitly answered.	Separates direct observation from an estimate.
Medication marker	Shown on an eligible exact prescription start date.	Marks timing only; it is not an effect claim.
30 days / 90 days / 6 months / 1 year	Calendar span ending at the selected range end.	Provides bounded periods without abbreviated unit labels.
Custom	Explicit start and end, with a minimum 7-day span.	Prevents accidental zero-length or very short ranges.

03 / PATTERNS

Pattern eligibility and stretch detection

Patterns summarize repeated recorded ratings. They do not identify depressive, manic, hypomanic, mixed, or other clinical episodes.

Rule	Implementation	Rationale
History gate	Patterns opens after 30 completed check-ins; the days need not be consecutive. Cycle has no 30-check-in gate.	Thirty is a product threshold, not a clinical standard. Each comparison still has its own minimum answers.
Daily match	Lower = -5 to -2; balanced = -1 to +1; higher = +2 to +5.	Classification uses answered Mood only. Mood is optional; a skipped answer belongs to no group.
Continuity	Lower and Higher retain their established four-before-bridge rule. Balanced evaluates the whole candidate: at least three consecutive matching answers and, if it includes isolated one-day interruptions, at least four actual matching answers. Two consecutive missing/different days end a candidate; established Lower/Higher spans are barriers.	A descriptive product display rule; intervening days retain their actual values and never count as matching answers.
Minimum span	An uninterrupted three-day matching run qualifies. For Balanced, a bridged candidate also needs four actual matching answers and three consecutive matches somewhere within it. Lower/Higher rules are unchanged.	A descriptive product display rule; intervening days retain their actual values and never count as matching answers.
Focused view	Show the stretch plus up to 3 nearby calendar days before and after.	Provides immediate context without changing which days belong to the selected stretch.

Why one intervening day may be bridged

Join adjacent matching Mood records. Lower and Higher retain their existing rule: a single intervening day may be included only after four matching days have accumulated in that run.

For Balanced, evaluate the complete candidate. A span containing isolated one-day interruptions qualifies when it has at least four actual Balanced Mood answers and at least three consecutive Balanced answers somewhere in that span. An uninterrupted run of three Balanced answers still qualifies. Two or more consecutive missing or different days end a candidate. Balanced never includes a date already belonging to an established Lower or Higher stretch, including those stretches' intervening days.

An intervening day is not changed, filled in or counted as a matching answer. Duration remains the inclusive calendar span from the first matching date to the last. These are descriptive product display rules, not clinical episode definitions or evidence of wellness or stability.

Formula: Balanced: group matches separated by at most one intervening day, respecting Lower/Higher barriers; keep a candidate with a consecutive run ≥ 3 and, if bridged, total matching answers ≥ 4 .

Pattern comparisons

Frequency comparison

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% selected = true selected answers / all eligible selected x 100
% other = true other answers / all eligible other x 100
difference = % selected - % other
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The result is a percentage-point difference, not percent change. The denominators use eligible recorded answers, with saved check-ins counted under the specific symptoms/changes convention above. Missing answers to other questions are excluded.

Eligibility or behavior	Current rule	Reason
Overall group	At least 5 selected days and 5 other days in the active range.	Suppresses percentages based on extremely small denominators.
In-app context selectors	Available questions and choices need no minimum answered-day count. Focused stretches still need 3 selected days and 5 other days overall.	Offering a question is different from calculating a group summary. An empty row is not a No answer.
Printable-report context	Fixed recorded-rhythm, latest-stretch and cycle-timing views; no app-selected context criteria or separate frequency-summary pages. Medication-change comparisons retain their separate readiness rules below.	The app picker and PDF report are different views of recorded data.
In-app context order	Questions follow the check-in sections. Movement time and activity are separate fields; Symptoms & side effects and Changes from usual share a searchable list with their type shown. Tag and activity choices are alphabetized for the selected language. Automatically choose up to 4 observed criteria by contrast; allow up to 6 selected rows.	Several choices of one field can form one OR row; time and activity remain two rows. Initial selection is not a significance ranking.
Written notes	Stored for the person but not analyzed.	Avoids interpreting free text as symptoms, causes, or criteria.

Rationale for minimum counts. These thresholds are readability safeguards, not statistical-power calculations. The app does not produce p-values, confidence intervals, or population inference. A result can still be unstable when it barely meets the minimum, so all cards show the underlying counts.

Context criteria

Field type	Calculation	Rationale
Movement	Compare each category: 0–10 min, 11–30 min, 31–59 min, or 60+ min.	Keeps the person's answer categorical; it does not infer exertion, calories, or a clinical state.
Sleep duration	Four ranges: under 6 h; 6 h to under 7 h; 7 h to under 9 h; 9 h or more. A skipped answer enters none.	Fixed product categories, not personal-median ranges, recommended sleep amounts or clinical thresholds.
Current three-choice questions	Compare the frequency of each specific response among answered days.	Keeps Energy, Interest, Need for sleep, Irritability, and Managing everyday life in their own terms.
Numeric rating questions	Mood and custom -5 to +5 ratings: Lower -5 to -2, Balanced -1 to +1, Higher +2 to +5 (normalized boundaries 0.35 and 0.65). Custom 0–10 answers remain exact-value lines only.	The bands organize recorded ratings; they do not evaluate health or convert named choices into Mood bands.
Multi-select choices	Selected choices within one field form one OR criterion: a day matches if at least one selected choice was recorded. The combined symptoms/changes row can span both tag lists. Symptoms and changes use every saved check-in; activities, emotions and custom choices use answered days.	For the two specified tag lists only, no selected tag counts as None in derived comparisons. Raw missingness and other answer types remain distinct.
Yes / no questions	Compare the percentage of answered days recorded Yes.	Uses the explicit binary answer without converting a skipped question to No.
Custom questions	-5 to +5 ratings can be lines and criteria; 0–10 answers are exact-value lines only. Yes/no and choices can be criteria, not numeric lines. Text is neither.	Preserve answer type and raw value; do not invent health interpretations for a person's scale.

Medication criteria in the app. Patterns and Cycle can add a medicine recorded in current or past prescriptions, or an intake outside a recorded prescription. Choose Any dose or a recorded dose with its unit; 75 mg and 75 mL are different choices. Each selected option counts toward the same six-row limit. Names manually combined in My Meds use that same grouping, without asserting clinical equivalence.

Only check-ins that answered the medication question enter a medicine comparison. A matching intake is recorded on one side; answered days without that intake are on the other. A skipped question enters neither side. Older records without an answered-question list retain the existing legacy answer convention. “Not recorded” is not proof the medicine was not taken. Options come from recorded prescriptions and intakes; a dose is not a recommendation. These app criteria do not replace the PDF’s prescription-change windows. Calculations run on the device when Insights is enabled; underlying medication answers can be included in signed-in account backup. Timing does not establish cause, efficacy or whether a dose helps.

Movement threshold rationale. The daily movement bands are product-defined categories for organizing self-reported time. They are not derived from or validated by weekly public-health guidance. The 30- and 60-minute boundaries may resemble simple daily fractions of the United States adult guideline range of 150–300 minutes per week, but those weekly recommendations do not validate these day-level labels [4]. The app displays only the bare minute ranges 0–10 min, 11–30 min, 31–59 min, and 60+ min. This avoids judging the person's movement or suggesting a clinical activity level. Current United States and World Health Organization (WHO) guidance recognizes that all activity counts, including short bouts [4,5]. Hues Within includes walking, chores, and errands and does not measure intensity. None of these categories indicates that a self-reported day meets or fails a public-health guideline.

Older movement answers. An older 31–60 minute answer is converted to 31–59 minutes when older records are converted or imported. This loses detail: the original range cannot identify an answer of exactly 60 minutes. No more precise duration is inferred.

Recent and earlier comparison sets

Context	Reference set	Use
Pattern graph	Other completed days outside the selected group or focused stretch.	Comparisons use these records, but no dashed usual/median reference line is drawn.
Recent compared with earlier	Latest 14 completed check-ins versus up to 90 immediately preceding completed check-ins.	Mood only: the app compares Lower, Balanced, and Higher frequencies with answered-day counts. The current PDF does not include this recent-versus-earlier card.
Cycle timing in the PDF report	Recorded-period and estimated phase bands with eligible recorded-answer lines.	Shows recorded timing; no before/during/after median-comparison summary.
In-app numeric context	Fixed sleep ranges and rating bands described above.	No pooled personal-median cutoffs.

- The Recent compared with earlier card appears after at least 90 completed check-ins overall.
- At first appearance, the earlier set may contain 76 records because the latest 14 are held out.
- Mood needs at least 5 answered values in both the recent and earlier sets. This app card is separate from the PDF's prescription-change comparisons.
- Earlier and Recent bars show the recorded range distribution and counts. They do not label the result as stable, improved or worsened. The PDF's prescription-change summaries retain their own question labels; named choices are not turned into Mood bands.

Rationale. Fourteen completed check-ins form a recent comparison block, while up to 90 earlier check-ins provide the earlier comparison set. Earlier records are a comparison period, not a definition of the person's normal, healthy, or stable state. Medians used for recorded stretch lengths and cycle estimates are less affected by an unusually high or low observation than means [1]; the new app sleep criteria instead use fixed ranges. The 14/90 windows and minimum answered-value counts are product heuristics, not clinical cutoffs. Bar colors identify positions on the scale, not a measure of stability.

Prescription-change comparisons

Medication views compare recorded answers before and after an exact-dated, user-entered prescription record. Medication names, dates, doses, timing, symptoms, and side effects are not independently verified against a pharmacy, prescriber, or medical record. The views report timing and do not evaluate efficacy, whether a symptom or side effect was caused by the change, medication adherence, or any other causal relationship.

Comparison windows

Before = eligible dates up to and including the change date
After = eligible dates after the change date

Before includes the day of the change. After starts the next day. Presets are 30 days, 90 days, 6 calendar months, or 12 calendar months. Custom durations set before and after independently from 7 to 1,095 approximate days. For a change on date D, the full 30-day Before window is D-29 through D, and After is D+1 through D+30; the 90-day windows follow the same convention. Month windows retain calendar-month stepping, with the Before start shifted one day forward to include D while preserving the span. Coverage, per-question missingness and after-window truncation rules remain. Calendar-window coverage is not the denominator for every question.

This is a calendar grouping convention. A whole-day check-in is not split around a medication dose. A change-day answer can cover experiences before and after a dose; the grouping does not establish when a dose was first taken or when an effect began.

Printable-report calendar windows. The PDF uses 30 calendar days before and after each eligible change: Before is D-29 through D; After is D+1 through D+30. Before starts no earlier than the first saved check-in. After ends at the earliest of D+30, today, or the day before the next exact-dated prescription change. Before needs at least 14 available calendar days. Each side needs saved check-ins on at least half its available days, rounded up. This is a calendar-day rule, not a requirement for 14 answered records per question. The selected report period chooses which change boundaries appear; the comparison uses all saved history and may include dates outside that period. A later exact change outside the report period still caps After. The report states the basis, actual dates/counts and limited, partial or truncated windows. Optional questions use their actual answered counts; sleep retains its separate coverage rules. The app can use other selected durations, so its records match the PDF only when the same 30-day window is selected.

Mood comparisons show the distribution of answered ratings. The five named-choice questions show their recorded responses and answered-day counts. Sleep, Symptoms & side effects, Changes from usual and custom questions follow their separate counting and readiness rules above and below.

Rule	Implementation	Rationale
Boundary precision	Only an exact day-level prescription record defines a comparison boundary.	A month- or year-only record cannot support a defensible day-level before/after split.
Date coverage	Each side needs completed check-ins on at least half its available calendar days, rounded up.	Reduces sparse comparisons while allowing ordinary missed days.
Before-history floor	If fewer than 14 calendar days are available in Before, including the change day, no comparison is shown. Fourteen or more may be shown as a limited window.	Avoids presenting a comparison based on only a few days.
After-window cap	The after side ends at today while still building, or the day before the next exact-dated prescription change.	Prevents records after a later change from being assigned to the earlier change.

Rule	Implementation	Rationale
Answer readiness	The overall before and after windows must be ready. Rating and named-response rows show their actual answered counts, including missing sides; the sleep-range comparison requires both sleep windows to be ready.	A completed check-in does not imply that every optional measure was answered.
Rating and sleep outputs	Mood band distributions; dominant named responses and pictograms for all five current three-choice questions; middle-half Sleep duration from the 25th to 75th percentiles.	Ties name each tied answer and its own count instead of calling the result Mixed. Sleep uses a shared axis spanning recorded durations across both sides; its middle half is not the full recorded range.
Symptoms and changes from usual	Initially show the top 5 tags by combined day count; Show more reveals the rest. Mirrored bars divide days with each tag by all saved check-ins on that side. Count a tag once per day and merge capitalization/outer-space variants.	No selected tag counts as None under the specific convention above, including skipped or switched-off questions. It does not confirm absence. Tags from either side remain eligible; notes are not classified and no causal or severity conclusion is made.
Change list	Shows 5 exact-dated prescription boundaries first; See more reveals 5 additional boundaries at a time.	Keeps long medication histories readable without dropping eligible comparisons.

Rationale. The window lengths are user-selected analysis spans, not pharmacologic onset assumptions. The half-days coverage rule and 14-day historical floor are product sufficiency rules. They make sparse or extremely short comparisons less likely, but they do not turn an observed change into evidence that a medication caused it.

Medication records and grouped names

Medication history includes saved prescriptions and medications explicitly recorded outside a prescription. It distinguishes prescribed information from recorded intake; a missing check-in does not prove that a medication was not taken. Recorded days appear inside prescription entries; dose, timing and intake statuses can open independently. A new prescription that keeps a medicine unchanged may be described as dose maintained. Consecutive explicitly recorded entries may share a date range only when their recorded facts match.

Merging medication names is permanent after confirmation. The chosen display name is shown across history, comparisons and exports; stored original names and restoration data remain. The app does not offer separation of merged medication names. Tag merging is separate. These are organization and presentation rules, not verified medication identity, adherence or treatment-effect findings.

05 / CYCLE CONTEXT

Recorded period dates and estimated phases

Recorded bleeding is kept separate from calendar-derived phase estimates. Estimated phases provide context for reviewing check-ins and are not fertility, ovulation, or contraceptive guidance.

Element	Operational rule	Rationale and limitation
Period cluster	Recorded Yes days remain in one cluster while gaps between them are 10 days or fewer.	Allows missed daily answers within one reported bleeding period. Ten days is a product grouping rule.
Complete tracked cycle	One cluster start to the next, 18-60 calendar days, with a completed manual check-in on at least one-third of all calendar days in the interval.	Determines which observed lengths can inform ongoing estimates. Any completed check-in counts toward coverage even if Period was skipped. The bounds are not a diagnosis.
Recorded bleeding	Only dates explicitly answered <code>period = Yes</code> .	Direct observation is not extended into unanswered days.
Estimated follicular	Day after recorded bleeding ends through 15 days before the next period start.	Fills the calendar interval before the fixed luteal estimate.
Estimated luteal	The 14 calendar days ending the day before the next period start.	A transparent calendar approximation; actual luteal timing varies.
Estimated premenstrual	The final 7 days of the estimated luteal phase.	Provides a consistent late-cycle comparison window.
Calendar-estimated ovulation day (shown as Ovulation under Estimated cycle phases)	The first estimated luteal day, 14 days before the next period start.	A labeled calendar estimate only; there is no biological ovulation measurement.

Rationale for estimate labels. Prospective evidence shows meaningful within-person variability in follicular and luteal phase lengths [2]. Calendar-only methods also have limited accuracy for the day of ovulation [3]. Hues Within therefore labels every follicular, luteal, premenstrual, and calendar-estimated ovulation placement as estimated and does not use it for fertility decisions.

Cycle comparisons

Comparison	Selected records	Reference and threshold
Cycle timing in the PDF report	Recorded-period and estimated phase bands with eligible recorded-answer lines.	Shows recorded timing; no before/during/after median-comparison summary.
Recorded-period context in the app	Completed check-ins explicitly answered <code>period = Yes</code> .	Reference: explicit <code>period = No</code> ; unanswered questions enter neither side. Available questions and choices need no per-side answered-day minimum; dots require matching recorded answers.

Cycle shows recorded periods, estimated phase bands and eligible daily answers. It has no 30-check-in minimum. Context selection does not change the one-cycle projection rule. The PDF shows timing charts without before/during/after median comparisons.

Open-cycle projection

- A projection requires at least 1 qualifying complete historical cycle (two recorded starts) and a most recent recorded period cluster, not 90 days or three complete cycles.
- Predicted cycle length is the rounded median of the person's completed-cycle lengths.
- The displayed next-start range uses that person's shortest and longest completed-cycle lengths.
- Ongoing phase dates and lengths may adjust when the next period start is recorded. Estimates for completed cycles remain anchored to their recorded starts unless those period records are edited.
- The ongoing estimated portion uses lighter phase colors.
- Without a qualifying complete cycle, recorded periods and eligible historical phase bands remain visible, but there is no ongoing projection. The app does not substitute a universal 28-day cycle.

Rationale. One qualifying cycle enables an early personal estimate, not a reliable prediction. With only one length, the median, minimum, and maximum coincide: a single displayed date does not mean certainty. Additional records may change the estimate, and even a multi-cycle minimum/maximum range is not a confidence interval. It must not be used to prevent or plan pregnancy.

Display and formula reference

Range and chart controls change what is visible. They do not change the meaning of an answered value.

Mood Map. Full selected date range in Monday-Sunday rows. Blank cells remain blank, and a day preview opens from each answered cell.

Timeline. All in-range qualifying stretches, recorded period starts, and prescription events, ordered newest first. A stretch stays on one row unless a point event falls within it; then the Timeline shows started and, when later history closes it, ended rows.

Rhythm charts. Mood, Energy, Need for sleep, and Irritability are current app base rows. Optional rows include Interest, Managing everyday life, Sleep duration, Movement, Medication adherence, Period flow, Period cramps, and custom numeric questions. Available lines can be selected without answers; missing dates stay blank. Phase shading, prescription markers, values, and context dots share a time axis. No usual/median reference line is drawn. Context rows use question and choice names, not a numbered legend. The printable report has fixed recorded-rhythm and latest-stretch views; it does not select four contrasts or reproduce the app's saved context choices.

History calendar and record summaries

History shows recorded entries and remains available with Insights off. With Insights on, it also shows Mood ranges. Turning Insights off removes those derived range labels, outlines and legends from the calendar, summaries and shared image; the recorded Mood value remains available.

Spreadsheet boundaries

Spreadsheet exports contain four readable sheets and a hidden sheet with answer formats and identifiers used for restoration. Explicitly answered empty symptom lists are shown as None recorded; skipped answers remain distinct. Retired questions have no export columns. The spreadsheet is not a full app backup, and Medication History is export-only. Importing a spreadsheet is not offered in the app.

Excel remains a recorded-data export with Insights on or off. It includes daily notes, emotions, custom answers and explicit Period No answers, with prescription history in a separate sheet. It is the more complete export of recorded answers; it is not a full app backup. PDF, Excel and image exports are free at every offered range, including full history, whether Insights is on or off. Plus access to longer interactive in-app ranges and other paid in-app features remains separate.

Name on exports. The optional name on reports appears on the PDF and Excel information sheet. If empty, the Home/display name is used. It is not automatically sent to a clinician. Signed-in basic-profile backup includes this optional field. Restoring an older backup without it preserves the report name already on this device.

Report selection and missing content. Select the offered sections before export. Medication comparisons default to All; Latest selects the newest exact-dated change in the period, even if unready, and specific changes can also be selected. Sections without content are omitted before pagination, except that a selected prescription change keeps its own page with actual dates and an insufficient-data message, without invented summaries or charts. Recorded 0, No, None and useful partial results remain, as do thresholds, cover and explanatory notes.

Printable-report page limits. Recorded days, Cycle graphs and exceptionally long stretch close-ups use at most six calendar months per graph page; full-size content may continue at the same dates. Mood Map ranges longer than one year use one full-width weekly-ribbon box per reportable calendar year, at most two per page; empty years take no space. Recent stretches covers the final 90 inclusive calendar days of the selected period, or all dates if shorter; totals cover the full selected period. Overview and totals follow the year maps once. Latest available Lower, Balanced and Higher stretches share one box. Each selected medication change starts its own page; long content continues at readable size. These display limits preserve detection, eligibility, recorded values and missing days.

Saved days and long answers. Daily History includes only saved check-in dates in the selected period. Saved partial entries and explicit 0, No and None remain. Long answers stay in their cells and may require horizontal scrolling or opening the spreadsheet editor.

Unique non-written custom-question summaries appear in Report notes when Insights is on and results are available; their selected-period calculations and explicit No/zero values remain. Raw exports with Insights off retain recorded day details. Downloadable Mood Map images include all selected days, with year blocks for very long ranges. Patterns images split long ranges into three-month pages with continuous data and event markers. Timeline images include every selected event, with up to eight events per image; multiple images are shared one at a time through the page picker, and a single image has no page counter.

Day-level spreadsheet dates use year-month-day format; approximate prescription dates retain their recorded precision. A blank answer cell means not answered, rather than No or zero.

With Insights on, the printable report includes eligible charts, summaries and comparisons under the rules in this document; it does not include a complete day-by-day answer table, daily notes or written custom answers. With Insights off, none of those derived calculations run. The report lists Mood, Sleep duration and the five named-response questions in a daily table, with movement, period, medication intake/dose, symptoms/side effects, changes from usual, activities, emotions and non-written custom answers below each day, followed by prescription history. Explicit No and None are answers; skipped questions remain distinct. Daily notes and written custom answers are excluded and disclosed; prescription-record notes can appear in either report. Excel remains the more complete recorded-answer export.

Settings and offline limits. Turning Insights off or withdrawing sensitive-data consent applies on this device before the choice is sent to the account; offline choice records are retained for retry. If the device cannot save the choice, it may not persist after restarting. An Insights activation made on another device may not appear until the next session; this device keeps Insights off in the meantime. Journal notes and written custom answers are excluded from the PDF. Use the spreadsheet for the more complete recorded-answer export.

Hiding or deleting a tag changes its future availability without removing its word from past check-ins. Reset to default can restore deleted built-in tags; deleted personal tags stay removed. Need for sleep describes personal felt need, not a clinical threshold.

Day-level chart behavior

Element	Current behavior	Displayed value
Rhythm points	One calendar day per point across the selected range.	The answered value on that date; no weekly or monthly averaging.
Wide ranges	Longer and custom ranges extend the horizontal scroll.	Day-level answers remain day-level instead of being aggregated.
Timeline	The selected range controls what appears; the newest completed manual check-in in full history decides whether a stretch has ended.	There is no separate hidden event cap. Full-history closure prevents a stretch from appearing ongoing merely because its closing check-in is outside the visible range.

Exact prescription dates may mark comparison charts. Approximate month- or year-only dates stay in narrative Timeline entries and remain labeled as approximate. A recorded period start or prescription event inside a qualifying stretch is annotated as occurring during that lower, balanced, or higher stretch.

Formula reference

Quantity	Definition
Normalized rating	$p = \text{clamp}((\text{value} - \text{source minimum}) / (\text{source maximum} - \text{source minimum}), 0, 1)$

Quantity	Definition
Frequency	$f = \text{count}(\text{true}) / \text{count}(\text{eligible})$
Percentage-point difference	$100 \times (f \text{ selected} - f \text{ reference})$
Median	Odd n: center ordered value. Even n: mean of the two center values.
Interpolated quantile	$h=(n-1)q; \text{ lo}=\text{floor}(h); \text{ hi}=\text{ceil}(h); \text{ Qq}=\text{x}[\text{lo}]+(h-\text{lo}) (\text{x}[\text{hi}]-\text{x}[\text{lo}])$
Typical stretch duration	$\text{round}(\text{median}(\text{inclusive qualifying spans}))$

Interpretation safeguards

- Association is not causation; the app does not determine whether a medication is working.
- Missingness changes denominators and may reflect what a person chose or was able to record.
- Personal thresholds and product gates are not clinical cutoffs.
- Higher refers to the upper portion of the recorded mood scale, not automatically to wellness, energy, activation, hypomania, or mania.
- Cycle phases and calendar-estimated ovulation placement are calendar estimates, not biological measurements.
- Reports summarize the record as entered and should be reviewed with a qualified clinician when used in care.

Limitations of the method

- Records are self-reported and may be incomplete, entered later, remembered differently, or selected differently depending on how the person feels. Missingness may therefore be non-random.
- Before/after and timing-window comparisons are observational. They do not adjust for simultaneous medication changes, dose timing, sleep, cycle timing, illness, stress, care, environment, regression to the mean, or other confounding factors.
- Minimum counts improve readability but do not establish statistical reliability. The app does not calculate confidence intervals, p-values, clinical significance, or population-level inference.
- Calendar-based cycle estimates cannot confirm ovulation or fertility status and may be especially uncertain with irregular cycles, changing cycle patterns, postpartum status, perimenopause, hormonal medication, illness, or incomplete tracking.
- A report shared with a clinician is supporting context supplied by the person. It is not a verified medical record, professional interpretation, diagnosis, or treatment recommendation.

How the rules were chosen

The document separates implemented rules, product heuristics, and external evidence. A citation can support a design rationale without validating the app's exact threshold.

Category	Meaning	Examples in this methodology
Implemented rule	A current calculation or display behavior in the app.	Optional Mood -5 to +5; five three-choice questions; Patterns-only 30-check-in gate; range-specific bridging with complete-candidate Balanced rules; exact-date medication boundary.
Product heuristic	A transparent design choice used for sufficiency, grouping, or readability.	Minimum counts; 14-check-in recent block; 18-60-day qualifying cycle and one-third tracking coverage.
Evidence-informed rationale	Published evidence supports the general concern or direction, not necessarily the exact number.	Robust medians; variability and limits of calendar-only cycle estimates.
Clinical criterion	A diagnostic or treatment standard applied by a qualified professional.	Not produced by Hues Within.

References

1. National Institute of Standards and Technology (NIST) / SEMATECH e-Handbook of Statistical Methods. *Detection of Outliers; robust statistics and the median*. Accessed 22 September 2026. [Source for reference 1](#)
2. Henry S, Shirin S, Goshtasebi A, Prior JC. Prospective 1-year assessment of within-woman variability of follicular and luteal phase lengths in healthy women prescreened to have normal menstrual cycle and luteal phase lengths. *Human Reproduction*. 2024;39(11):2565-2574. Digital object identifier: 10.1093/humrep/deae215. PubMed identifier: 39320898. [Source for reference 2](#)
3. Johnson S, Marriott L, Zinaman M. Can apps and calendar methods predict ovulation with accuracy? *Current Medical Research and Opinion*. 2018;34(9):1587-1594. Digital object identifier: 10.1080/03007995.2018.1475348. [Source for reference 3](#)
4. United States Department of Health and Human Services. *Physical Activity Guidelines for Americans, 2nd edition*. 2018. [Source for reference 4](#)
5. World Health Organization. *WHO guidelines on physical activity and sedentary behaviour: at a glance*. 2020. [Source for reference 5](#)