

# Relationship Trust and Concealment Assessment

Updated Explanation of How the Questionnaire Functions

The Centre for Forensic Neuroscience

Status	Pilot-stage decision-support questionnaire (Full version, 177 items after trust-context update)
Intended use	Structured reflection, research, education, therapeutic discussion support and signposting
Not intended use	Proof, diagnosis, accusation, legal evidence, lie detection, or determination of infidelity
Core outputs	A cautious concealment concern band, plus a separate Trust Vulnerability Profile
Data handling	Local browser calculation only; no storage or transmission unless a separate consent-based research protocol is introduced

## 1. Purpose of the Questionnaire

The Relationship Trust and Concealment Assessment is designed to help a user organise concerns about possible concealment, boundary violation or betrayal in an intimate relationship.

The questionnaire does not determine whether betrayal has occurred. It does not detect lies, diagnose infidelity, establish guilt or prove misconduct. It estimates the degree of concern about concealment or possible boundary violation. The final output is a concern band, not a finding of fact.

The updated full version contains 177 items across 13 domains. The additional domain is a relationship trust-context layer. It is included to help separate concealment-related indicators from trust sensitivity, attachment-related insecurity, prior relationship injury and privacy-versus-secrecy interpretation. This new domain is not used as evidence of deception and does not contribute to the concealment score.

## 2. Overall Structure

The questionnaire is divided into 13 domains. Each domain captures a different type of information. The tool does not treat all behaviours equally: general behavioural change and relationship baseline are weighted cautiously as contextual information, while concealment, inconsistency and direct evidence are weighted more strongly. Alternative explanations reduce or qualify concern. Safeguarding acts as an override warning rather than a scored domain. Relationship Trust Context is scored separately and independently.

Section	Domain	Items	Role
A	Relationship Baseline	10	Contextual qualifier
B	Behavioural Change	15	Scored concealment-related domain
C	Opportunity and Access	15	Scored concealment-related domain
D	Phone, Digital and Online Secrecy	20	Scored concealment-related domain
E	Concealment and Inconsistent Explanations	20	Scored concealment-related domain
F	Relational and Sexual Withdrawal	15	Scored concealment-related domain
G	Financial and Practical Anomalies	10	Scored concealment-related domain
H	Direct or Quasi-Direct	15	Scored concealment-related

	Evidence		domain
I	Prior History and Relationship Context	10	Contextual modifier
J	Alternative Explanations	15	Protective / qualifying domain (reduces concern)
K	User Certainty and Evidence Quality	10	Confidence qualifier (adjusts cap)
L	Safeguarding and Misuse Risk	10	Override warning (not scored)
M	Relationship Trust Context	12	Separate Trust Vulnerability Profile (not part of concealment score)
Total		177	165 existing items plus 12 trust-context items

### 3. Response Format

Each questionnaire item is answered using a structured scale. The user is asked to focus on observable behaviour rather than assumptions or intuition alone. Where possible, the user should focus on changes during the last 3-6 months unless the item asks about prior history or longer-term relationship patterns.

Score	Meaning
0	No / not present
1	Possibly or slightly present
2	Clearly present
3	Strongly present, repeated, or corroborated
N/A	Not applicable or unknown

N/A responses count as completed but do not add to the domain score. When calculating domain severity, N/A items reduce the scoring denominator so that unavailable information does not dilute or inflate the result.

### 4. Domain Scoring

Each question belongs to a specific domain. The tool adds the scores within each domain and then converts the domain score into a severity level: low, mild, moderate or strong. Severity is determined dynamically based on the percentage of the domain maximum, using only non-N/A items.

Severity	Score as % of domain maximum
Low	0% to 15%
Mild	Greater than 15% to 35%
Moderate	Greater than 35% to 65%
Strong	Greater than 65%

Domain	Example item type
Relationship Baseline	Changes in privacy, communication and openness compared with earlier patterns
Digital secrecy	Unusual phone protection, hidden accounts, deleted messages
Concealment	Changed explanations, vague answers, partial disclosure
Opportunity/access	Unaccounted-for time, private meetings, unexplained travel
Direct evidence	Messages, admissions, dating profiles, documentary indications
Prior history	Previous betrayal, broken boundaries, reconnection with past contacts
Alternative explanations	Stress, health issues, conflict, confidentiality or privacy concerns
User certainty	Self-assessed confidence, evidence basis, consistency over time
Relationship Trust Context	Trust anxiety, emotional avoidance, prior relational injury and privacy-versus-secrecy interpretation

## 5. Why Domains Are Used Instead of One Crude Total

A single total score would be misleading because not all behaviours have the same evidential meaning. Emotional distance, tiredness or reduced sexual interest may result from stress, depression, health issues, resentment or ordinary relationship strain. By contrast, deleted messages, hidden accounts, changed explanations, undisclosed meetings or partial admissions are more specifically associated with concealment or possible boundary violation.

The domain approach therefore prevents general relationship unhappiness from being overinterpreted as betrayal. Contextual domains use deliberately mild likelihood ratios so that they inform rather than dominate the calculation. User Certainty does not contribute a likelihood ratio at all but instead qualifies the confidence cap. The new Relationship Trust Context domain is deliberately separated from the concealment model to avoid treating attachment insecurity, previous betrayal or heightened trust sensitivity as evidence of dishonesty.

## 6. Bayesian Logic

The questionnaire uses a provisional Bayesian model. Bayesian reasoning starts with a prior probability and updates that probability as evidence is considered. The calculation is easiest to understand in odds form:

Posterior odds = Prior odds x Likelihood Ratio

Posterior probability = Posterior odds / (1 + Posterior odds)

The tool may show sensitivity results using different illustrative priors, for example 5%, 15% and 25%. This demonstrates that the output depends partly on the starting assumption and should not be treated as a fixed fact. Likelihood ratios are applied at domain level only. The tool does not multiply item-by-item likelihood ratios. Relationship Trust Context is excluded from Bayesian updating.

## 7. Likelihood Ratios

Each concealment-related domain severity level is mapped to a provisional likelihood ratio. A likelihood ratio above 1 increases concern. A likelihood ratio below 1 reduces concern. A likelihood ratio of exactly 1 has no effect. These values are pilot values and are not yet empirically validated.

Domain	Low	Mild	Moderate	Strong
Relationship Baseline	1.0	1.05	1.1	1.15
Behavioural change	1.0	1.1	1.3	1.6
Opportunity/access	1.0	1.1	1.6	2.2
Digital secrecy	1.0	1.2	2.0	3.5
Concealment/inconsistency	1.0	1.5	3.0	5.0
Relational withdrawal	1.0	1.1	1.3	1.6
Financial anomalies	1.0	1.2	2.0	3.5
Direct evidence	1.0	2.0	5.0	10.0
Prior history	1.0	1.2	1.8	2.5
Alternative explanations	1.0	0.8	0.5	0.25
User certainty	n/a	n/a	n/a	n/a
Safeguarding	n/a	n/a	n/a	n/a
Relationship Trust Context	n/a	n/a	n/a	n/a

Relationship Trust Context does not receive a likelihood ratio and does not increase or decrease the concealment concern estimate.

## 8. Relationship Trust Context and Attachment-Related Vulnerabilities

This new domain is included because some users may experience heightened concern about concealment because of relational anxiety, prior betrayal, emotional self-protection, or difficulty distinguishing healthy privacy from suspicious secrecy. These responses may be clinically and therapeutically useful, but they are not evidence of deception.

Subdomain	Items
Trust Anxiety	1. I frequently worry that I may be misled, rejected, or abandoned in relationships. 2. Uncertainty in a relationship can quickly become distressing for me. 3. I sometimes assume the worst when communication from a partner feels unclear.
Emotional Avoidance	4. I find it difficult to depend emotionally on a partner. 5. I sometimes keep emotional distance to protect myself from being hurt. 6. I may withdraw emotionally during conflict or uncertainty.
Prior Relational Injury	7. Past betrayal or relationship breakdown still affects how I interpret current concerns. 8. Previous experiences have made me more alert to possible signs of dishonesty. 9. I sometimes react strongly to situations that resemble previous relational harm.
Privacy vs Secrecy Interpretation	10. I sometimes struggle to distinguish healthy privacy from suspicious secrecy. 11. I feel uneasy when a partner wants significant independence or personal space. 12. I may interpret privacy or reduced communication as emotional distancing.

The output for this section is called the Trust Vulnerability Profile. It is descriptive and non-diagnostic. It should be used to support reflection, discussion or therapeutic formulation, not accusation.

Trust Vulnerability Profile band	Meaning
Minimal trust vulnerability indicators	Responses show little evidence of heightened trust sensitivity in this section.
Mild trust sensitivity indicators	Some responses suggest uncertainty, vigilance or relationship sensitivity that may warrant reflection.
Moderate relational trust vulnerability indicators	Responses suggest a meaningful trust-context component that may influence how concerns are interpreted.
Elevated relational trust vulnerability indicators	Responses suggest that prior injury, attachment-related insecurity, emotional avoidance or ambiguity intolerance may be strongly shaping current concern. This is not evidence of deception.

## 9. Worked Bayesian Example

Assume the questionnaire uses a prior probability of 15%. First, convert the prior probability into odds:  $\text{Prior odds} = 0.15 / (1 - 0.15) = 0.176$ . Now assume the responses produce the following domain findings:

Domain	Severity	Likelihood ratio
Relationship Baseline	Mild	1.05
Behavioural change	Moderate	1.3
Opportunity/access	Moderate	1.6
Digital secrecy	Strong	3.5
Concealment/inconsistency	Moderate	3.0
Relational withdrawal	Mild	1.1
Financial anomalies	Low	1.0
Direct evidence	Mild	2.0
Prior history	Low	1.0

Alternative explanations	Moderate	0.5
Relationship Trust Context	Elevated	Excluded from Bayesian model

Combined likelihood ratio =  $1.05 \times 1.3 \times 1.6 \times 3.5 \times 3.0 \times 1.1 \times 1.0 \times 2.0 \times 1.0 \times 0.5 = 25.22$ . Posterior odds =  $0.176 \times 25.22 = 4.44$ . Posterior probability =  $4.44 / (1 + 4.44) = 0.816$ , or approximately 82%. The Relationship Trust Context result is reported separately and does not change this calculation.

Because this is a self-report pilot questionnaire, the result should be expressed as a cautious concern band rather than as proof or a definitive probability.

## 10. Conservatism Cap

The questionnaire applies a conservatism cap to avoid overclaiming. This is necessary because the responses are self-reported, some items overlap, and the likelihood ratios are provisional.

Evidence level	Maximum reportable estimate
No direct evidence	75%
Some direct evidence	85%
Admission or strong corroboration	95%

The User Certainty and Evidence Quality domain adjusts the conservatism cap by a small amount to reflect the self-assessed quality of the evidence. Low certainty makes the output more conservative; strong certainty can slightly raise the cap, with an overall floor of 50% and ceiling of 95%. Relationship Trust Context does not adjust the cap.

User Certainty severity	Cap adjustment
Low (weak evidence basis)	-5% (more conservative)
Mild or Moderate	No change
Strong (well-evidenced concerns)	+5% (slightly less conservative)

## 11. Concern Bands

The final concealment-related result is expressed as a concern band. The band is more important than any exact numerical percentage.

Estimated range	Concern band	Meaning
0-15%	Low concern	The reported pattern is weak or better explained by ordinary relationship strain or alternative causes.
16-35%	Mild concern	Some concerns are present, but the pattern is limited or ambiguous.
36-60%	Moderate concern	The pattern warrants careful reflection or discussion but remains uncertain.
61-80%	Elevated concern	Several domains are consistent with possible concealment or boundary violation.
81%+	High concern	The pattern is strongly concerning, especially if concealment or direct evidence is present, but it is still not proof.

## 12. Report Interpretation and Dual-Track Output

The updated report should display two separate constructs:

- Concealment Concern Indicators: the Bayesian concern band derived from concealment-related domains, alternative explanations, evidence quality and conservatism caps.

- Trust Vulnerability Indicators: the independent Trust Vulnerability Profile derived from Relationship Trust Context items.

Where technically feasible, the report may include a side-by-side or dual-axis visualisation showing Concealment Concern Indicators separately from Trust Vulnerability Indicators. This visual distinction is important because a person may show elevated concern and low trust vulnerability, elevated trust vulnerability and low concealment indicators, or elevations in both.

Report wording should include: Elevated trust vulnerability indicators may reflect previous betrayal experiences, attachment-related insecurity, relational anxiety, communication difficulties, ambiguity intolerance, unresolved relationship injury, or current relationship instability. These findings should not be interpreted as evidence of deception, infidelity, or wrongdoing.

### 13. Sensitivity Analysis

The questionnaire shows results under different prior assumptions: 5%, 15% and 25%. This helps users understand that no questionnaire can know the true base rate in an individual relationship. Sensitivity analysis makes the model more transparent and less dogmatic. Relationship Trust Context remains separate from all prior-probability sensitivity calculations.

### 14. Alternative Explanations

The alternative-explanation section is essential because many behaviours can have non-betrayal explanations. For example, emotional distance may reflect depression, stress, resentment or fatigue. Reduced sexual interest may reflect health issues, medication, anxiety or conflict. Phone privacy may reflect work confidentiality or a need for autonomy. Strong alternative explanations reduce or qualify the concern level.

### 15. Safeguarding and Misuse Override

The safeguarding section functions differently from the other domains. It does not increase or decrease the betrayal concern score. Instead, it checks whether use of the questionnaire may be unsafe or inappropriate in the current context.

Safeguarding items may include fear of confrontation, threats, intimidation, violence, coercive control, stalking, surveillance, legal disputes, child-contact disputes, pressure from another person to complete the questionnaire, or intention to use the result to accuse, shame, control or confront another person.

If safeguarding concerns are endorsed, the tool displays a caution regardless of the Bayesian score: Some responses suggest possible safety, coercion, surveillance, legal or misuse concerns. This questionnaire should not be used to confront, pressure, monitor, accuse or control another person. Consider seeking appropriate professional support before taking further action.

### 16. Completion Threshold

The questionnaire does not generate a report if too few questions are answered. At least 80% of non-safeguarding items should be completed before a report is generated. This prevents users from answering only the most concerning items and receiving an inflated result. The Trust Vulnerability Profile should also require adequate completion within its own section before a band is displayed.

### 17. What the Report Shows

A generated report includes the overall concealment concern band, the main domains increasing concern, the domains reducing or qualifying concern, alternative explanations, any safeguarding warning, sensitivity analysis using different priors, the separate Trust Vulnerability Profile, a disclaimer that the result is not proof, and suggested next steps.

## 18. Appropriate Uses

- Personal reflection and organisation of concerns
- Identifying whether concerns are based on observable patterns
- Distinguishing suspicion from evidence
- Encouraging consideration of alternative explanations
- Exploring whether prior relationship injury or trust vulnerability may be influencing interpretation
- Educational demonstration of Bayesian reasoning
- Pilot research
- Professional discussion support or signposting to counselling, legal advice or safeguarding support

## 19. Uses to Avoid

- Proving betrayal or determining guilt
- Accusing or confronting a partner
- Treating attachment insecurity or prior betrayal as evidence of deception
- Justifying surveillance, monitoring or unauthorised access
- Pressuring someone into disclosure
- Replacing counselling, safeguarding advice or legal advice
- Making child-contact, legal or forensic decisions
- Supporting coercive control, threats, shame or manipulation

## 20. Privacy and Data Handling

The questionnaire does not collect responses, store answers, transmit data, email results, log sensitive information, create user accounts or save relationship details on a server. For privacy reasons, responses are processed locally in the browser and are not saved. If the user refreshes or leaves the page, their responses will be lost.

If research data collection is introduced later, it should require separate informed consent, anonymisation, data minimisation and appropriate data protection review.

## 21. Limitations

The questionnaire has important limitations. It is based on self-report. The user may misunderstand events, overinterpret behaviour, omit context or answer in a distressed state. The Bayesian likelihood ratios are provisional and are not yet based on validation data. The concern bands are therefore illustrative and should be treated cautiously.

The questionnaire cannot determine intent, truthfulness or whether betrayal occurred. It can only state that a reported pattern is more or less consistent with possible concealment or boundary violation. The Trust Vulnerability Profile cannot diagnose attachment style, trauma, anxiety or relationship disorder; it only indicates possible relational trust-context factors that may influence interpretation.

## 22. Required Report Disclaimer

This assessment evaluates patterns of concern, trust perception, concealment-related indicators, and relationship interpretation styles. It cannot establish factual deception, infidelity, or concealed behaviour. Findings should be interpreted cautiously within broader relational and contextual factors.

## 23. Summary

1. Asks the user about observable behaviours across 13 domains, including a separate Relationship Trust Context domain.
2. Scores each domain separately using dynamic percentage-based thresholds.
3. Classifies concealment-related domains as low, mild, moderate or strong.

4. Maps concealment-related domain severities to provisional likelihood ratios.
5. Applies Bayesian updating from a prior probability to a posterior estimate.
6. Keeps Relationship Trust Context separate from the Bayesian concealment model.
7. Reports a Trust Vulnerability Profile without treating it as deception evidence.
8. Reduces or qualifies concern where alternative explanations are plausible.
9. Applies a conservatism cap, adjusted by user certainty, to prevent overclaiming.
10. Triggers a safeguarding warning where misuse or safety risks are present.
11. Reports a concern band rather than a definitive conclusion.

The tool is best understood as a pilot-stage Bayesian decision-support questionnaire for structuring reflection on relational trust, concealment, possible boundary concerns and trust-context vulnerabilities. It is not a betrayal detector, a lie detector, a diagnostic instrument or a source of proof.