Prompt Q1:

You are an expert academic writer specializing in neuroscience and cognitive psychology. Your task is to write the Introduction section of a Q1-level scientific journal article titled: “Neural Signatures of Addiction Semantics: A Comparative ERP (N400) and Non-ERP Analysis of Cognitive Processing in Normal Adolescents” Follow these detailed requirements carefully: Writing & Structural Guidelines: Tone and Style: Use formal academic English consistent with Nature, Frontiers in Neuroscience, or NeuroImage journal standards. Avoid robotic phrasing and predictable AI patterns. Use varied sentence structures, human-like flow, and natural transitions. Ensure the writing passes GPTZero and Turnitin detection (use idiomatic and semantically rich phrasing). Structure the Introduction into 4–5 clear paragraphs: Paragraph 1 (Background): Introduce the global issue of addiction among adolescents, emphasizing linguistic and psychological aspects. Mention that addiction-related language can activate cognitive and emotional responses observable in neural activity. Paragraph 2 (EEG in Addiction Research): Describe the importance of EEG and Event-Related Potentials (ERP) in identifying cognitive responses to addiction-related cues. Paragraph 3 (Non-ERP Analysis): Explain non-ERP approaches (time–frequency, PSD, continuous EEG analysis) and their potential to capture broader temporal brain dynamics. Paragraph 4 (Research Gap): Identify the gap—few studies have directly compared ERP and non-ERP approaches for analyzing responses to addiction terminology among adolescents. Paragraph 5 (Aim and Contribution): Clearly state the research objective: to compare ERP and non-ERP EEG analyses in detecting cognitive responses to addiction terminology among adolescents, highlighting methodological and theoretical contributions. References: Include 8–12 recent, real, and verifiable journal references (2019–2025) in APA 7th edition format. Cite recent works on ERP, EEG in addiction research, and adolescent brain studies. Example journals: Frontiers in Human Neuroscience, NeuroImage, Addictive Behaviors, Clinical Neurophysiology, Journal of Neural Engineering. Formatting: Maintain in-text citations in APA style (Author, Year). End with a complete References section in APA 7th edition format. Avoid placeholder citations (e.g., “(Author, Year)”) — use real and verifiable studies. Output Requirements: Produce around 700–900 words (typical for Q1 introductions). Ensure logical flow between paragraphs. Emphasize novelty, scientific rationale, and significance. Use transitional connectors (e.g., “However,” “Moreover,” “Recent evidence suggests that…”). Avoid bullet points—use narrative academic prose.  
  
2.

You are an expert academic writer and EEG researcher.  
Your task is to write the **Materials and Methods** section of a Q1-level neuroscience journal article titled:

**“Neural Signatures of Addiction Semantics: A Comparative ERP (N400) and Non-ERP Analysis of Cognitive Processing in Normal Adolescents”**

Follow these detailed instructions carefully.

**Tone and Style**

* Write in **formal academic English**, consistent with top-tier journals such as *Frontiers in Neuroscience*, *NeuroImage*, or *Scientific Reports*.
* Maintain **clarity, precision, and replicability** — all descriptions should allow the study to be reproducible.
* Avoid robotic phrasing or redundant transitions. Ensure **natural flow**, **semantic richness**, and **human-like variation**.
* Ensure the text is **undetectable by GPTZero** and **free from plagiarism (Turnitin-safe)**.

**Structure and Content Requirements**

Organize the section into **six subsections**, each clearly titled and logically connected.

**2.1 Participants**

* Describe the number of adolescent participants (e.g., 25–40), age range (e.g., 15–19 years), and gender balance.
* State inclusion/exclusion criteria (no neurological disorders, normal/corrected vision, no substance dependence).
* Include **ethical approval statement** (institutional ethics committee approval and informed consent).
* Mention data anonymization and compliance with the Declaration of Helsinki.

**2.2 Experimental Design and Stimuli**

* Explain the **stimulus materials**: addiction-related and neutral words (matched in length, frequency, and valence).
* Describe the **task paradigm** (e.g., lexical decision or passive viewing task).
* Specify trial structure: fixation duration, stimulus presentation time, and inter-trial interval.
* Mention the number of stimuli per condition and randomization procedure.

**2.3 EEG Data Acquisition**

* Provide the **EEG system details**: number of electrodes (e.g., 32 or 64-channel system), placement (10–20 International System), reference electrode, and sampling rate (e.g., 500–1000 Hz).
* Report impedance thresholds (<10 kΩ), and environment control (sound-attenuated, electrically shielded room).

**2.4 Preprocessing**

* Explain preprocessing pipeline:
  + Band-pass filtering (e.g., 0.1–30 Hz)
  + Artifact rejection (e.g., ocular, muscular)
  + Independent Component Analysis (ICA) for artifact removal
  + Epoching (−200 to 800 ms relative to stimulus onset)
  + Baseline correction and averaging for ERP
* Specify software (e.g., **EEGLAB in MATLAB**).

**2.5 Analytical Procedures**

Divide into two parts:

**(a) ERP Analysis:**

* Describe ERP component identification (N100, P200, P300).
* Mention measurement of amplitude and latency per region (frontal, central, parietal).
* Describe how topographical scalp maps (*topoplots*) were generated.

**(b) Non-ERP Analysis:**

* Explain time–frequency or power spectral density (PSD) computation.
* Mention frequency bands analyzed (theta: 4–7 Hz, alpha: 8–12 Hz, beta: 13–30 Hz).
* Describe how mean band power or temporal signal variance was extracted.
* State the rationale for comparing non-phase-locked (continuous) activity with ERP findings.

**2.6 Statistical Analysis**

* Mention statistical tools (SPSS, Python, or MATLAB).
* Describe ANOVA or mixed-model approach (within-subject factors: condition; between-subject factors: gender or age if applicable).
* Correct multiple comparisons using Bonferroni or cluster-based permutation tests.
* Set significance level (p < 0.05).

**Output Requirements**

* Produce **800–1,000 words** (typical for Q1 Methods sections).
* Ensure **clear subsection headings**, **scientific accuracy**, and **logical flow**.
* Do **not include fictitious data**—use generic but realistic values for illustration.
* Use **past tense** for procedural descriptions.
* Avoid any placeholder citation (methods usually need fewer citations, but include 2–3 relevant methodological references such as Luck, 2019; Delorme & Makeig, 2004).

3.

You are an expert academic writer and neuroscientist specializing in EEG and ERP research.  
Your task is to write the **Results and Discussion** section of a Q1-level neuroscience article titled:

**“Neural Signatures of Addiction Semantics: A Comparative ERP (N400) and Non-ERP Analysis of Cognitive Processing in Normal Adolescents”**

Follow the detailed structure below and ensure academic rigor, narrative coherence, and interpretive depth.

**Tone and Style**

* Use **formal academic English** with a natural, human-like flow (avoid robotic phrasing).
* Style should be consistent with *Frontiers in Neuroscience*, *NeuroImage*, or *Scientific Reports*.
* Ensure the writing passes **GPTZero** and **Turnitin** checks by using semantically rich and varied syntax.
* Maintain **scientific neutrality** — report results objectively, then interpret them critically.
* Integrate **statistical descriptions, visual summaries, and neuroscientific interpretation** naturally in the prose.

**Structure and Content Guidelines**

Organize the section into **two major parts**:

**3.1 Results**

This section should *objectively* report findings without over-interpretation.  
Structure the Results in subsections:

1. **Descriptive Overview**
   * Summarize participant demographics (mean age, gender ratio, valid trials after artifact rejection).
   * Include a brief summary of data quality metrics (e.g., average impedance, number of excluded channels).
2. **ERP Findings**
   * Report key ERP components (N100, P200, P300) and how their **amplitudes/latencies** differ between *addiction-related* and *neutral* terms.
   * Present quantitative summaries (mean ± SD, p-values, effect sizes).
   * Mention significant clusters or electrode sites.
   * Describe topographical patterns (refer to *topoplot* figures).
3. **Non-ERP Findings**
   * Report outcomes from **time–frequency** or **PSD** analyses.
   * Mention frequency bands (theta, alpha, beta) showing significant differences.
   * Summarize power distribution across brain regions and time windows.
   * Optionally include comparison metrics (e.g., correlation between ERP amplitude and spectral power).
4. **Comparative Summary**
   * Briefly synthesize how ERP and non-ERP results converge or differ in detecting brain responses to addiction terminology.

*(Note: Use generic but realistic values for now; you’ll replace them later with your own data.)*

**3.2 Discussion**

Interpret and contextualize the results within existing literature.  
Organize the Discussion into 4–5 focused paragraphs:

1. **Main Findings**
   * Summarize the key outcomes (e.g., enhanced P300 amplitude for addiction-related words, increased theta power in non-ERP analysis).
   * Interpret what these mean in terms of **attentional bias, salience attribution, or semantic processing**.
2. **ERP Interpretation**
   * Relate ERP results to prior studies on addiction cue-reactivity and semantic processing.
   * Discuss neurocognitive mechanisms: attention allocation, cognitive control, reward anticipation.
   * Cite recent literature (2019–2025) such as Bel-Bahar et al., 2022; Xu et al., 2024; Balconi, 2024.
3. **Non-ERP Interpretation**
   * Discuss findings in the frequency domain (theta/alpha modulation, sustained oscillatory activity).
   * Relate them to continuous attention or emotional regulation networks.
   * Explain how non-phase-locked dynamics complement ERP results.
4. **Comparative Insights**
   * Compare methodological sensitivity and interpretability between ERP and non-ERP methods.
   * Highlight advantages (temporal precision vs dynamic range) and potential integration (multimodal EEG analysis).
5. **Implications and Future Directions**
   * Discuss theoretical implications for understanding adolescent vulnerability to addiction.
   * Suggest methodological implications (e.g., combining ERP and time–frequency for improved screening).
   * Mention future research: cross-cultural studies, longitudinal monitoring, or machine learning classification.

**References**

* Integrate **8–12 relevant, real, and verifiable journal references (2019–2025)** from *Frontiers in Human Neuroscience, NeuroImage, Addictive Behaviors, Brain Topography*, etc.
* Format all citations and reference list in **APA 7th edition**.
* Avoid placeholders like (Author, Year).

**Output Requirements**

* Length: **1,200–1,500 words** total.
* Include natural transitions between results and discussion (avoid abrupt section changes).
* When mentioning figures or tables, use neutral descriptors (e.g., “as illustrated in Figure 3”).
* Avoid any fabricated numerical precision; use plausible placeholders if no real data is provided yet.
* Write everything as **a cohesive, publishable academic narrative**, not bullet points.

4.

You are an expert academic writer in the field of cognitive neuroscience and EEG analysis.  
Your task is to write the **Conclusion** section of a Q1-level journal article titled:

**“Neural Signatures of Addiction Semantics: A Comparative ERP (N400) and Non-ERP Analysis of Cognitive Processing in Normal Adolescents”**

Follow the scientific conventions of *Frontiers in Neuroscience*, *NeuroImage*, or *Scientific Reports*.  
The writing must be natural, Turnitin-safe, and undetectable by GPTZero.

**Tone and Style Requirements**

* Write in **formal academic English** with a confident and reflective tone.
* Avoid generic or repetitive phrasing; use varied syntax and natural sentence rhythm.
* Maintain **scientific neutrality** — avoid overstatement of results.
* Ensure the writing reads like a **human-authored Q1 paper** (logical transitions, cohesive flow).
* Include concise mentions of key results, implications, limitations, and future directions.

**Structure and Content Outline**

Organize the Conclusion into **three to four cohesive paragraphs**, totaling around **400–600 words**.

**Paragraph 1 – Summary of Key Findings**

* Concisely restate the main aim and highlight the principal results.
* Summarize both ERP and non-ERP findings in one integrated statement.
* Example focus:
  + ERP analysis revealed heightened P300 amplitude to addiction-related cues.
  + Non-ERP analysis demonstrated increased theta power reflecting sustained cognitive engagement.
  + Together, these findings support the hypothesis that addiction terminology evokes stronger cognitive and affective responses in adolescents.

**Paragraph 2 – Theoretical and Methodological Implications**

* Explain how the findings advance understanding of neural mechanisms underlying addiction processing in adolescents.
* Emphasize the **complementary strengths** of ERP (time-locked processing) and non-ERP (oscillatory dynamics) methods.
* Discuss implications for future EEG research and methodological refinement (e.g., multimodal or hybrid EEG approaches).
* Optionally mention that the study bridges cognitive neuroscience and preventive addiction science.

**Paragraph 3 – Practical Implications**

* Discuss potential applications of the findings, e.g.:
  + Designing targeted psychoeducation or prevention strategies for adolescents.
  + Informing neurofeedback or EEG-based screening protocols for addiction vulnerability.
* Highlight the societal or clinical significance without overstating.

**Paragraph 4 – Limitations and Future Work (Optional)**

* Acknowledge realistic limitations (e.g., sample size, gender imbalance, EEG noise, stimulus generalizability).
* Suggest future research directions such as:
  + Longitudinal studies tracking cognitive-emotional adaptation.
  + Integration of deep learning or source localization for better interpretability.
  + Cross-cultural replication to assess generalizability.

**Final Paragraph – Closing Statement**

* End with a **strong concluding line** emphasizing contribution:
  + “This study underscores the importance of integrating ERP and non-ERP approaches to capture the multifaceted neural dynamics underlying adolescent responses to addiction-related stimuli.”
  + “By combining temporal precision with spectral insights, the proposed framework paves the way for more comprehensive neural models of addiction processing.”

**Output Requirements**

* Length: **400–600 words**
* Style: Concise, evidence-driven, non-repetitive
* Include **1–3 in-text citations** (APA 7th, 2019–2025) for support (e.g., Balconi, 2024; Xu et al., 2023; Liao et al., 2021).
* Avoid section subtitles; it should read as a continuous narrative.
* Must read like a *peer-reviewed published paper*, not a student thesis.