



The ARRIVE guidelines 2.0: author checklist

The ARRIVE Essential 10

These items are the basic minimum to include in a manuscript. Without this information, readers and reviewers cannot assess the reliability of the findings.

Item	Recommendation	Section/line number, or reason for not reporting
Study design	1 For each experiment, provide brief details of study design including: a. The groups being compared, including control groups. If no control group has been used, the rationale should be stated. b. The experimental unit (e.g. a single animal, litter, or cage of animals).	Sec. 2.3 (Experimental Design): 5 groups - Control, LPS, NS, NS + memantine, and memantine. Not explicitly reported.
Sample size	2 a. Specify the exact number of experimental units allocated to each group, and the total number in each experiment. Also indicate the total number of animals used. b. Explain how the sample size was decided. Provide details of any <i>a priori</i> sample size calculation, if done.	Sec. 2.3: 40 rats total; 5 groups; n = 8/group. Not reported.
Inclusion and exclusion criteria	3 a. Describe any criteria used for including and excluding animals (or experimental units) during the experiment, and data points during the analysis. Specify if these criteria were established <i>a priori</i> . If no criteria were set, state this explicitly. b. For each experimental group, report any animals, experimental units or data points not included in the analysis and explain why. If there were no exclusions, state so. c. For each analysis, report the exact value of <i>n</i> in each experimental group.	Not reported. Not reported. Sec. 2.3; Fig. 2; Table 5: n = 8/group; exact n is not reported for every analysis.
Randomisation	4 a. State whether randomisation was used to allocate experimental units to control and treatment groups. If done, provide the method used to generate the randomisation sequence. b. Describe the strategy used to minimise potential confounders such as the order of treatments and measurements, or animal/cage location. If confounders were not controlled, state this explicitly.	Sec. 2.3: rats were grouped randomly; randomisation method not reported. Not reported.
Blinding	5 Describe who was aware of the group allocation at the different stages of the experiment (during the allocation, the conduct of the experiment, the outcome assessment, and the data analysis).	Not reported.
Outcome measures	6 a. Clearly define all outcome measures assessed (e.g. cell death, molecular markers, or behavioural changes). b. For hypothesis-testing studies, specify the primary outcome measure, i.e. the outcome measure that was used to determine the sample size.	Secs. 2.4, 2.9-2.11; Results 3.1-3.10. Not reported.
Statistical methods	7 a. Provide details of the statistical methods used for each analysis, including software used. b. Describe any methods used to assess whether the data met the assumptions of the statistical approach, and what was done if the assumptions were not met.	Sec. 2.12: SPSS 22.0; one-way ANOVA followed by Tukey's post hoc test. Sec. 2.12: Shapiro-Wilk and Levene tests; assumptions were reported as satisfied.
Experimental animals	8 a. Provide species-appropriate details of the animals used, including species, strain and substrain, sex, age or developmental stage, and, if relevant, weight. b. Provide further relevant information on the provenance of animals, health/immune status, genetic modification status, genotype, and any previous procedures.	Abstract/Sec. 2.3: adult Wistar rats, both sexes, 200 +/- 30 g, exact age/substrain not reported. Sec. 2.3: bred at the JUW animal house; health/immune status, genotype/GM status and prior procedures not reported.
Experimental procedures	9 For each experimental group, including controls, describe the procedures in enough detail to allow others to replicate them, including: a. What was done, how it was done and what was used. b. When and how often. c. Where (including detail of any acclimatisation periods). d. Why (provide rationale for procedures).	Secs. 2.2-2.11 (especially 2.3-2.4). Secs. 2.3-2.4. Sec. 2.3: JUW; 7-day acclimatisation; temperature/humidity, light cycle, cage density, chow and water reported. Introduction; Secs. 2.2-2.4 provide rationale for the model, dose and procedures.
Results	10 For each experiment conducted, including independent replications, report: a. Summary/descriptive statistics for each experimental group, with a measure of variability where applicable (e.g. mean and SD, or median and range). b. If applicable, the effect size with a confidence interval.	Results 3.1-3.10; tables/figures. Mean +/- SD is reported where applicable; Table 6 presents scores without variability. Effect sizes and confidence intervals are not reported.

The Recommended Set

These items complement the Essential 10 and add important context to the study. Reporting the items in both sets represents best practice.

Item		Recommendation	Section/line number, or reason for not reporting
Abstract	11	Provide an accurate summary of the research objectives, animal species, strain and sex, key methods, principal findings, and study conclusions.	Abstract: objectives, adult Wistar rats, key methods, findings and conclusions are reported; sex is not stated.
Background	12	a. Include sufficient scientific background to understand the rationale and context for the study, and explain the experimental approach. b. Explain how the animal species and model used address the scientific objectives and, where appropriate, the relevance to human biology.	Introduction. Introduction: LPS-model rationale is described; Wistar-rat relevance to human biology is not explicit.
Objectives	13	Clearly describe the research question, research objectives and, where appropriate, specific hypotheses being tested.	Introduction, final paragraph.
Ethical statement	14	Provide the name of the ethical review committee or equivalent that has approved the use of animals in this study, and any relevant licence or protocol numbers (if applicable). If ethical approval was not sought or granted, provide a justification.	Ethics section: Jinnah University for Women IERB; Ref. JUW/IERB/PHARM-ARA-006/2023; NIH, 3Rs and ARRIVE compliance also stated.
Housing and husbandry	15	Provide details of housing and husbandry conditions, including any environmental enrichment.	Sec. 2.3: housing/husbandry conditions are reported; environmental enrichment is not reported.
Animal care and monitoring	16	a. Describe any interventions or steps taken in the experimental protocols to reduce pain, suffering and distress. b. Report any expected or unexpected adverse events. c. Describe the humane endpoints established for the study, the signs that were monitored and the frequency of monitoring. If the study did not have humane endpoints, state this.	Sec. 2.3: ketamine/xylazine anaesthesia and depth confirmation before exsanguination; Ethics section states 3Rs. Main-experiment adverse events are not reported; Sec. 2.2 pilot states no observable adverse responses at the selected dose. Not reported.
Interpretation/scientific implications	17	a. Interpret the results, taking into account the study objectives and hypotheses, current theory and other relevant studies in the literature. b. Comment on the study limitations including potential sources of bias, limitations of the animal model, and imprecision associated with the results.	Discussion. Discussion/Limitations: MWM tracking, sex-specific analysis and LPS-model limitations; bias/imprecision not explicit.
Generalisability/translation	18	Comment on whether, and how, the findings of this study are likely to generalise to other species or experimental conditions, including any relevance to human biology (where appropriate).	Discussion/Conclusions: model limitations and clinical evaluation are noted; broader generalisability is not explicit.
Protocol registration	19	Provide a statement indicating whether a protocol (including the research question, key design features, and analysis plan) was prepared before the study, and if and where this protocol was registered.	No protocol registration statement is reported.
Data access	20	Provide a statement describing if and where study data are available.	Data Availability: data are available from the corresponding author on request.
Declaration of interests	21	a. Declare any potential conflicts of interest, including financial and non-financial. If none exist, this should be stated. b. List all funding sources (including grant identifier) and the role of the funder(s) in the design, analysis and reporting of the study.	Conflicts of Interest: none declared. Funding: no external funding; funder role is not applicable.