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Based on the **December 28 Power Query** spreadsheet, which functions as a systematic literature review (SLR) and meta-analysis of social robotics, you can perform several high-impact statistical analyses. These stats will provide the empirical "teeth" for your **NSIR**validation and your **Federal Grant** proposal.

Here are the various statistical analyses you can perform using that data:

## 1. Sentiment and Linguistic Analysis (Text Mining)

Since your query includes a "Word Frequency" column (e.g., Table 64), you can run frequency and correlation stats:

- **Keyword Proximity Analysis:** Compare the frequency of "Submissive" vs. "Dominant" keywords across different robot types.
    - *Application:* Prove that current HRI reinforces "Status Scarring" by designing robots in servile (submissive) roles.
- **Term Frequency-Inverse Document Frequency (TF-IDF):** Identify which terms are unique to "Autism/ASD" papers versus general HRI papers.
    - *Application:* Highlight the "Medical Model" bias by showing that "compliance" appears more often in ASD-specific research than in general social robotics.

## 2. Meta-Analysis on "Social Rank" and "Safety"

Your query tracks N-sizes (number of participants) and findings across multiple years (2014–2025).

- **Effect Size Calculation (Cohen's ):** If the papers provide mean scores for "Trust" or "Social Presence," you can calculate a pooled effect size to show how much "Ubiquitous Presence" actually reduces social anxiety compared to "Static Interfaces."
- **Regression Analysis (Year vs. Humanization):** Plot "Year" against the presence of "Kinship" factors in the findings.
    - *Application:* Show a statistically significant trend moving away from "Robots as Tools" toward "Robots as Kin/Proxies," justifying the **NSIR (2025)** timing.

## 3. Gap Analysis (Descriptive Statistics)

Use the "Purpose" and "Comment" columns to quantify what is *missing* in the field:

- **The "Neuro-Equity Gap":** Calculate the percentage of studies that mention "Feminist HRI" or "Social Justice" vs. those that focus on "Technical Performance."
- **Demographic Skew:** Total the "N" (Participant count) across all papers to show how few studies involve "Actually Autistic" researchers as co-designers versus passive subjects.

## 4. Categorical "Factor Mapping" (Chi-Square Tests)

You can categorize the "Findings" column into your four NSIR factors (Kinship, Trust, Safety, Social Comfort).

- **Chi-Square Test of Independence:** Test if certain robot types (e.g., LLM-based like *Llama-omni* or *Misty*) are significantly more likely to trigger "Kinship" responses than older "Personality-based" models (Ahn, 2014).
- **Application:** This proves that your **High-Fidelity Social Transformer** (LLM-based) is statistically more likely to succeed as a "Social Exoskeleton."

## 5. Ethical Risk Analysis

Based on the *Abbo et al. (2025)* entry regarding users exploiting language models:

- **Violation Frequency:** Quantify the "5 techniques" used to violate ethical principles (insulting, appealing to pity, etc.).
- **Application:** Use this to justify the **"Sanctuary Switch"** and **"Notice of Protected Status"** in your proposal—statistically proving that without a "Status Guard," users are vulnerable to manipulation or "Status Scarring."