

**Table 2. Participant perceptions of the causes of irreproducibility.**

|   | N(%)                  |                           |                          |                        |          |                 |
|---|-----------------------|---------------------------|--------------------------|------------------------|----------|-----------------|
|   | Always<br>contributes | Very often<br>Contributes | Sometimes<br>Contributes | Does not<br>Contribute | Unsure   | Missing<br>data |
| Selective reporting of the published literature                     | 131 (8)               | 638 (40)                  | 714 (45)                 | 43 (3)                 | 73 (5)   | 31              |
| Selective publication of entire studies                             | 182 (11)              | 698 (44)                  | 577 (36)                 | 71 (4)                 | 71 (4)   | 31              |
| Pressure to publish   | 300 (19)              | 693 (43)                  | 473 (30)                 | 75 (5)                 | 57 (4)   | 32              |
| Low statistical power   | 185 (12)              | 706 (44)                  | 579 (36)                 | 76 (5)                 | 48 (3)   | 36              |
| Poor statistical analysis   | 197 (12)              | 615 (38)                  | 649 (41)                 | 99 (6)                 | 44 (3)   | 26              |
| Not enough internal replication (E.g., by the original lab/authors) | 132 (8)               | 539 (34)                  | 697 (44)                 | 93 (6)                 | 142 (9)  | 27              |
| Insufficient study oversight  | 86 (5)                | 376 (24)                  | 799 (50)                 | 194 (12)               | 143 (9)  | 32              |
| Lack of training in reproducibility                                 | 153 (10)              | 522 (33)                  | 622 (39)                 | 168 (11)               | 135 (8)  | 30              |
| Failure to make materials openly available                          | 141 (9)               | 449 (28)                  | 722 (45)                 | 191 (12)               | 99 (6)   | 28              |
| Failure to make original study data openly available                | 137 (9)               | 476 (30)                  | 685 (43)                 | 205 (13)               | 94 (6)   | 33              |
| Poor study design   | 208 (13)              | 584 (36)                  | 678 (42)                 | 96 (6)                 | 38 (2)   | 26              |
| Fraud   | 185 (12)              | 120 (8)                   | 624 (40)                 | 320 (20)               | 330 (21) | 51              |
| Poor quality peer review  | 140 (9)               | 437 (27)                  | 755 (47)                 | 192 (13)               | 72 (5)   | 34              |
| Problems in the design of replication studies                       | 103 (6)               | 406 (25)                  | 809 (51)                 | 162 (10)               | 123 (8)  | 27              |
| Technical expertise required for replication                        | 96 (6)                | 429 (27)                  | 743 (46)                 | 190 (12)               | 144 (9)  | 28              |
| Variability of standard reagents                                    | 82 (5)                | 288 (18)                  | 617 (39)                 | 229 (14)               | 380 (24) | 34              |
| Bad luck  | 23 (1)                | 70 (4)                    | 461 (29)                 | 568 (36)               | 466 (29) | 42              |