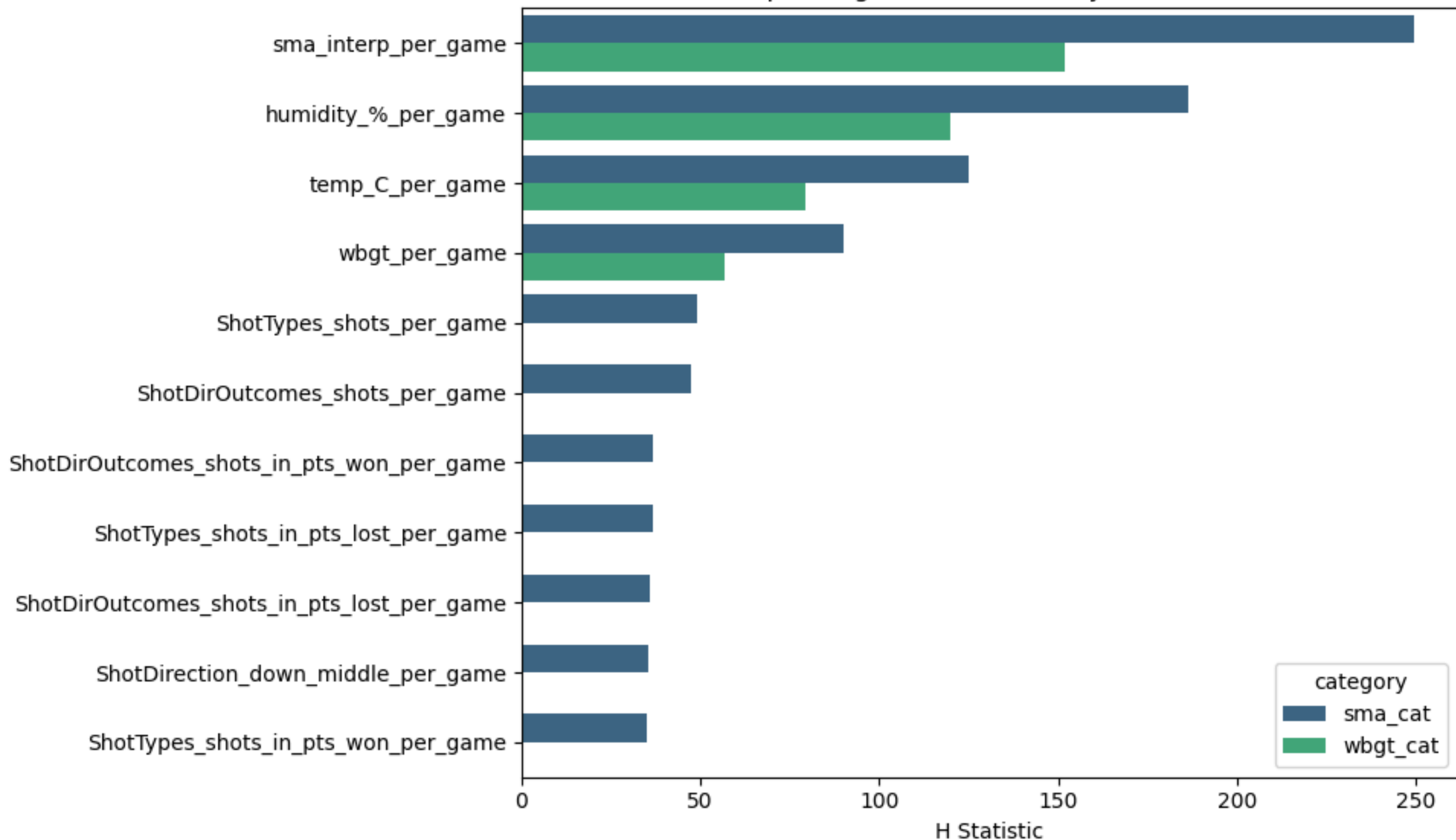
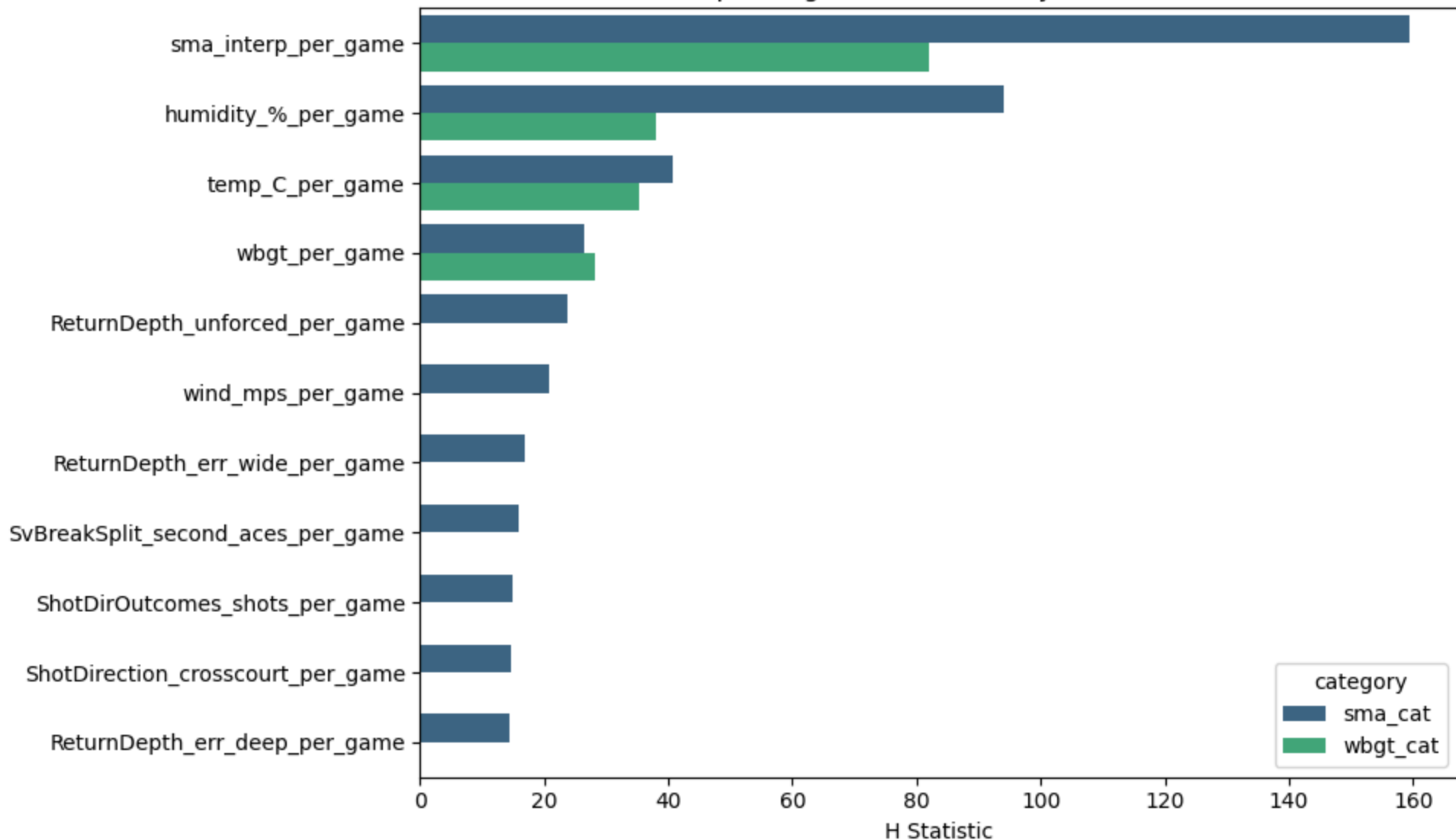


Top 15 Significant Metrics by H-statistic

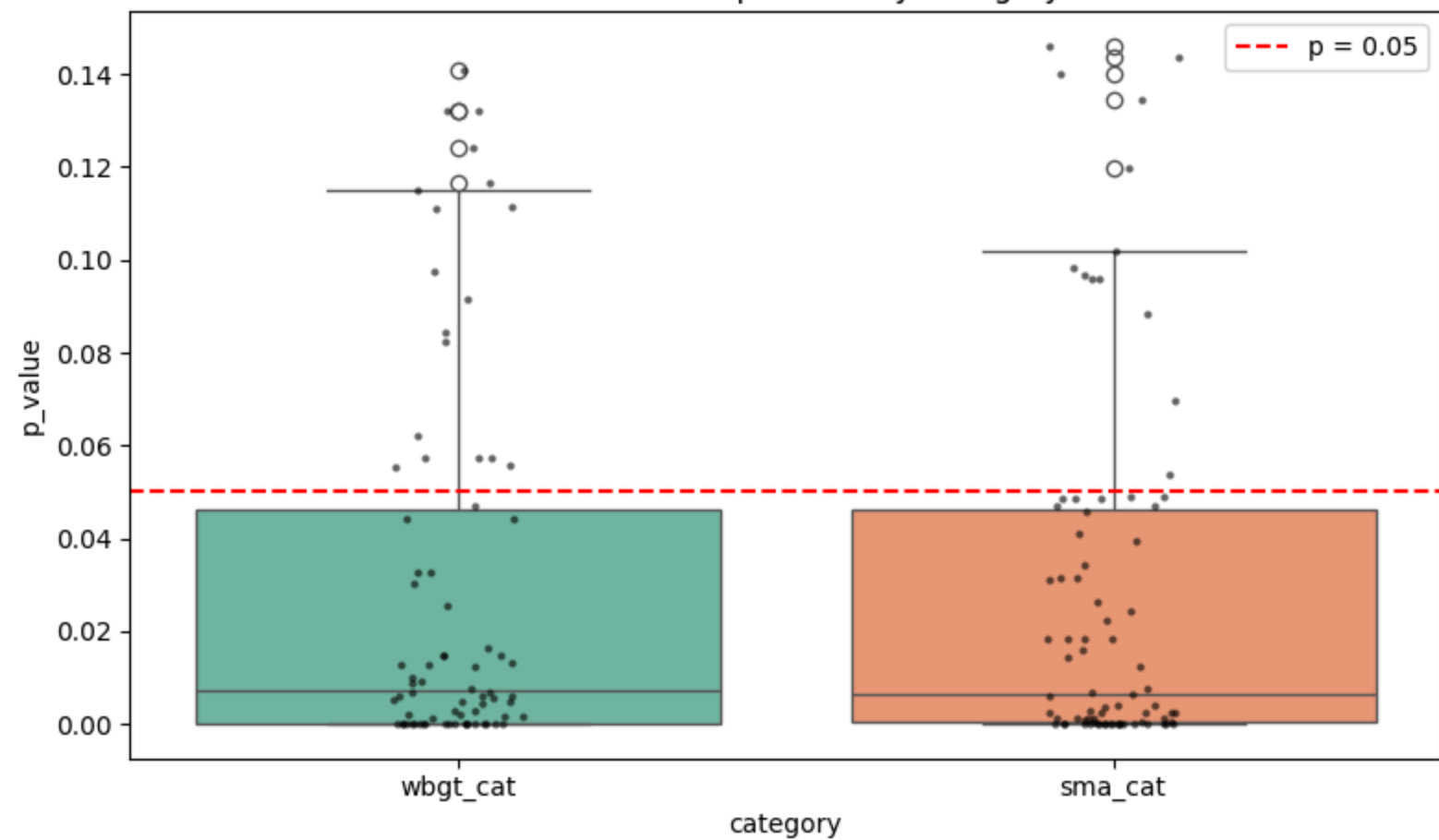
Metric



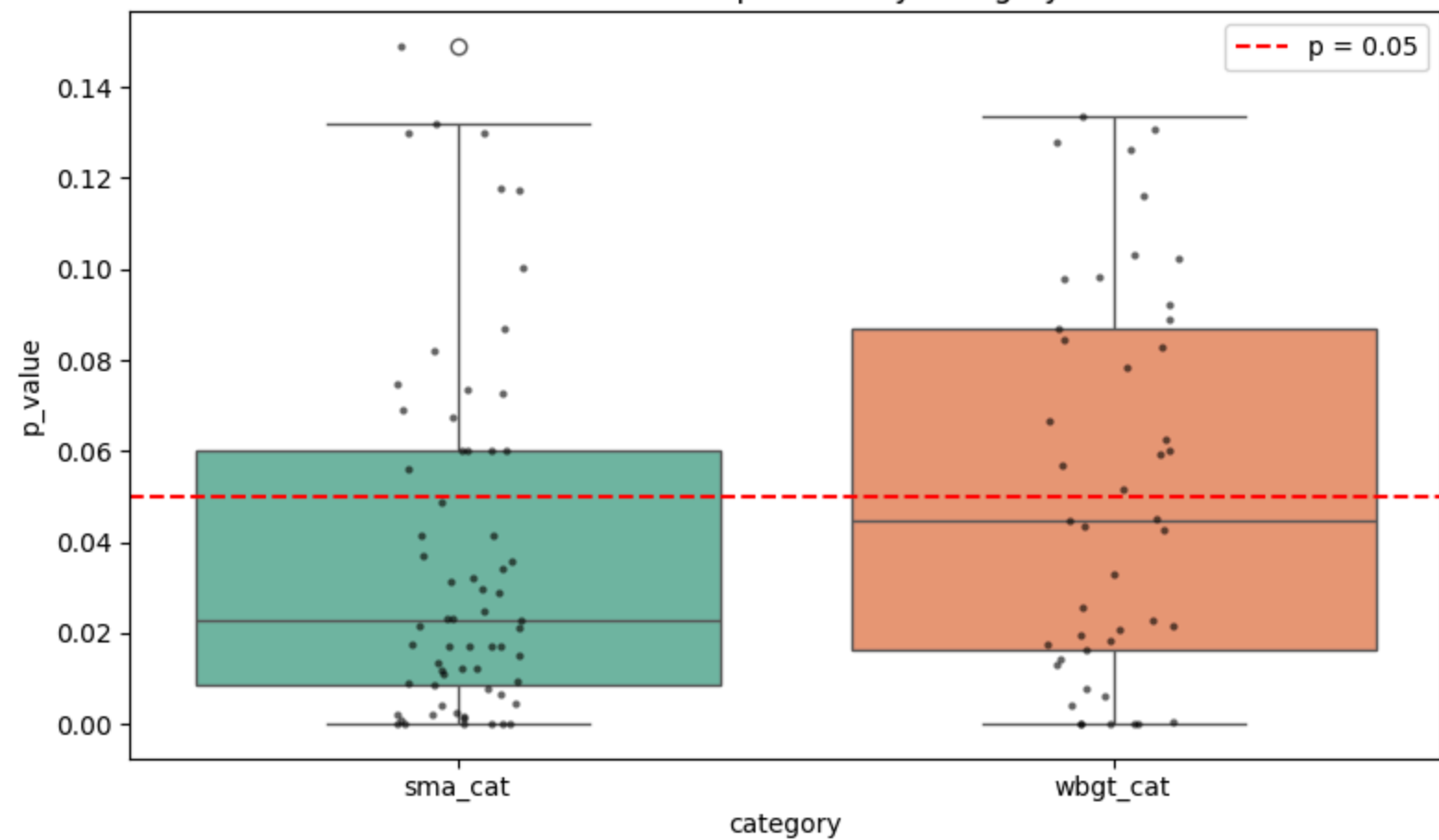
Top 15 Significant Metrics by H-statistic

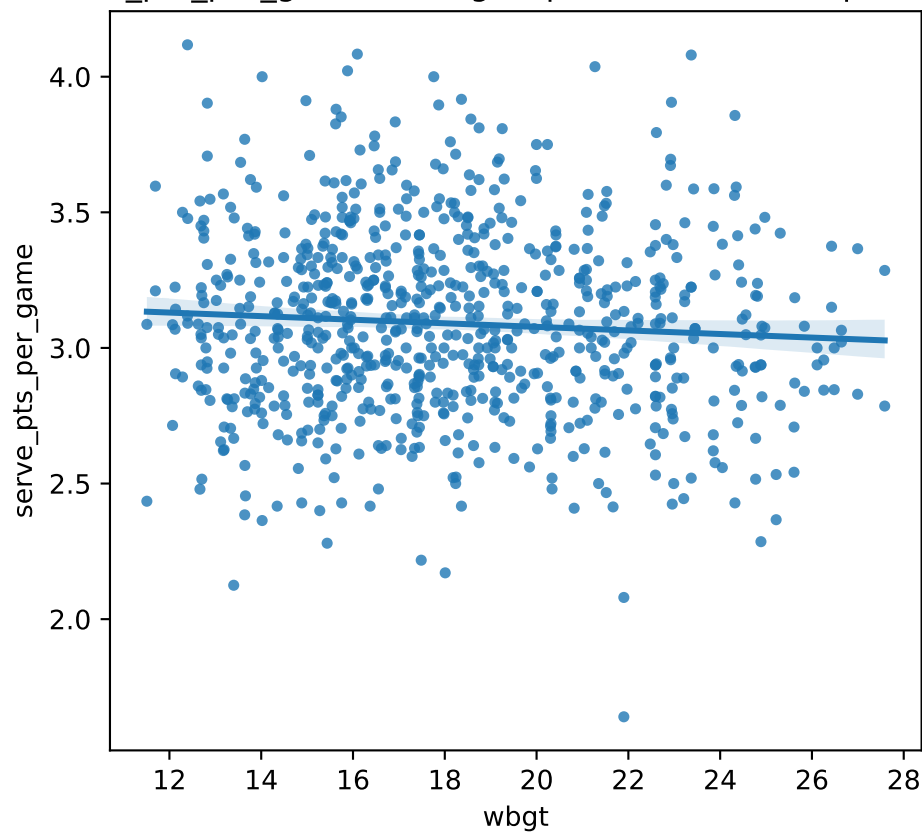
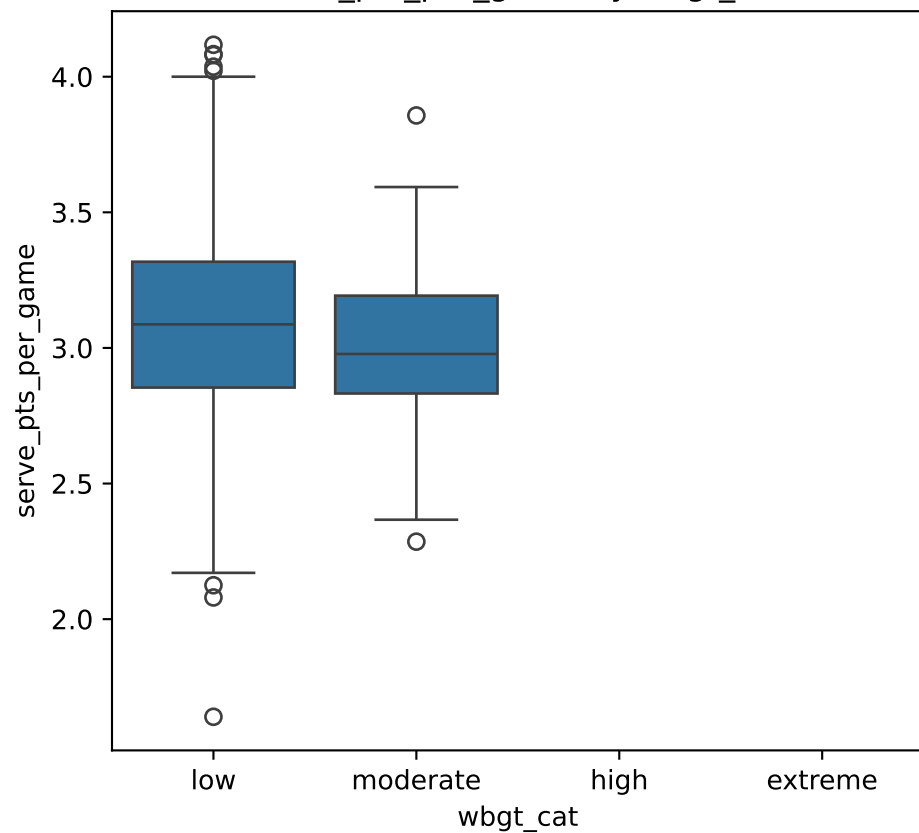


Distribution of p-values by Category



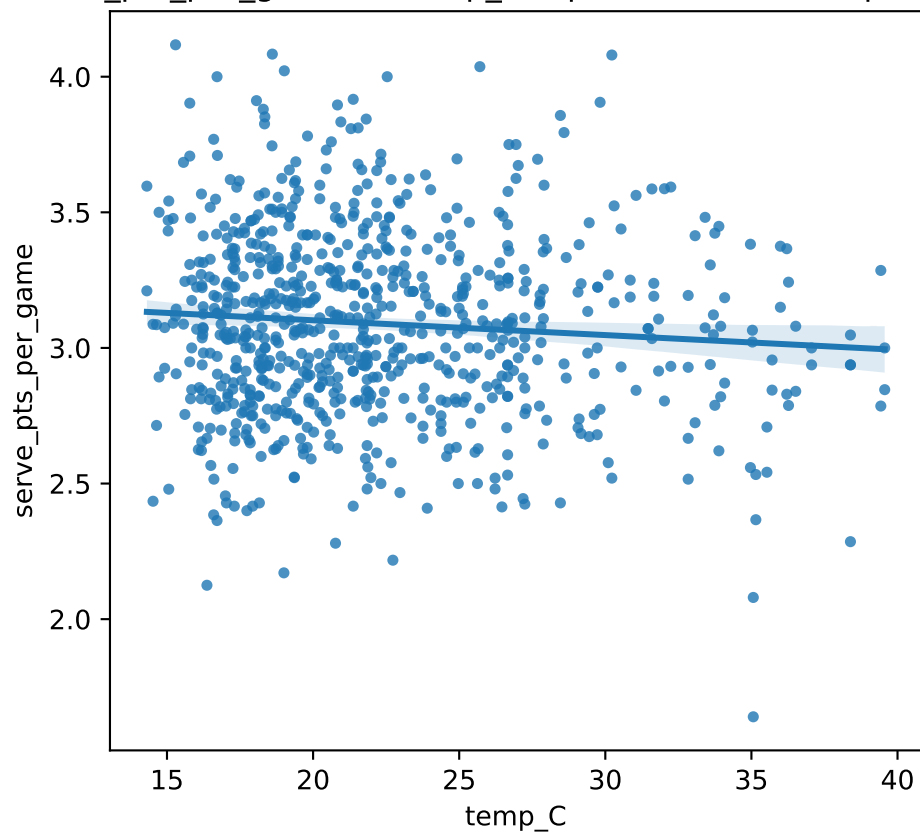
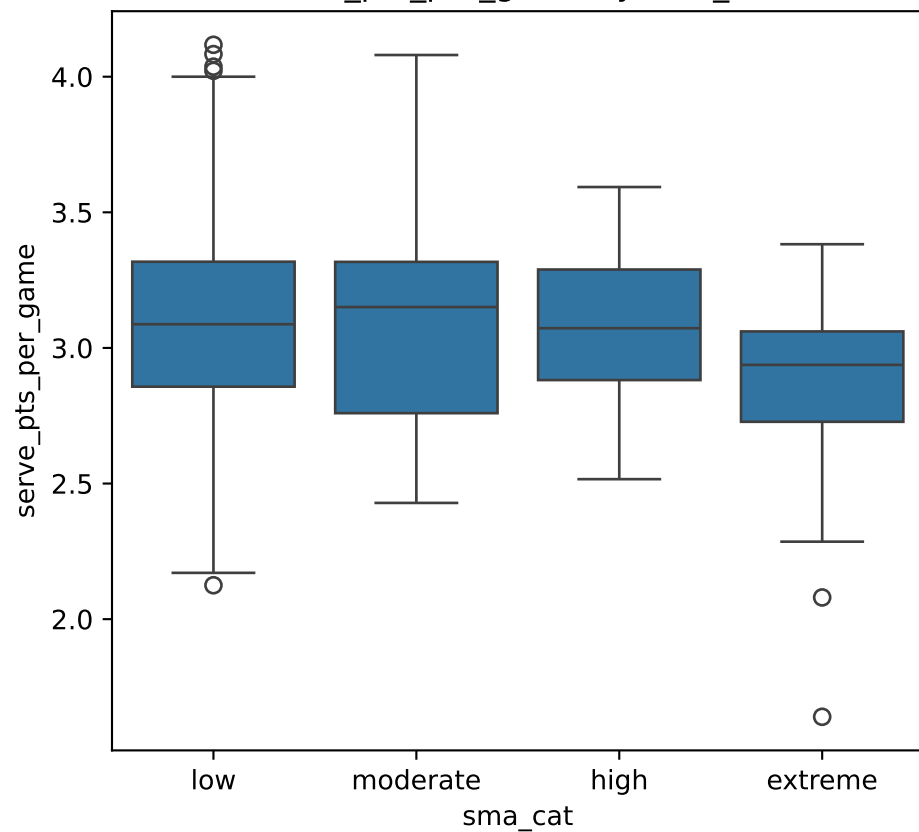
Distribution of p-values by Category





Dunn Post-hoc (p-değerleri)  
serve\_pts\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.057    |
| moderate | 0.057 | 1.0      |

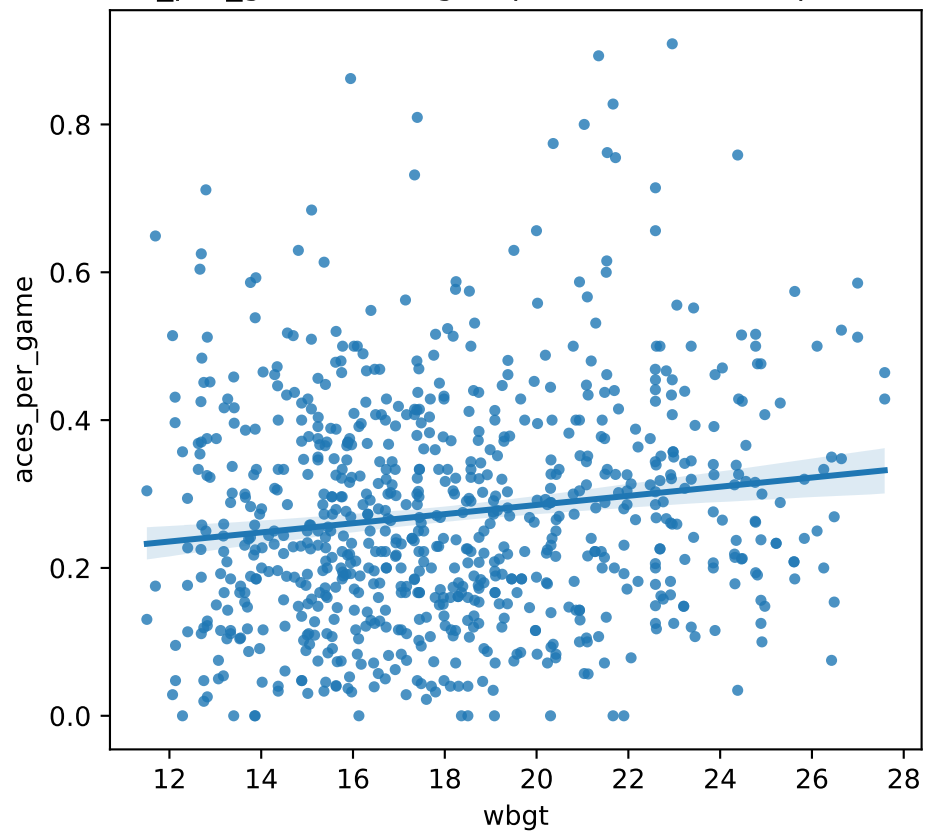
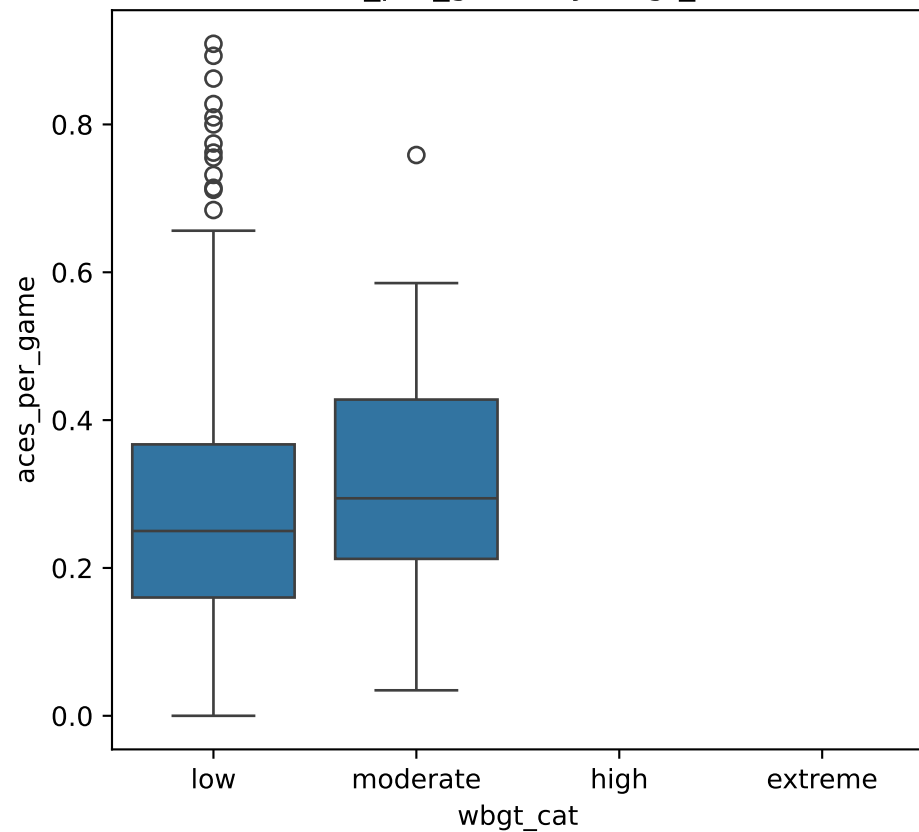


serve\_pts\_per\_game - sma\_cat  
Kruskal  $p = 0.0184$ , Jonckheere  $p = \text{NA}$ , Corr  $p = 0.23583160848404966$   
serve\_pts\_per\_game vs temp\_C (Spearman  $r = -0.04$ ,  $p = 0.236$ )

Dunn Post-hoc (p-değerleri)  
serve\_pts\_per\_game by sma\_cat

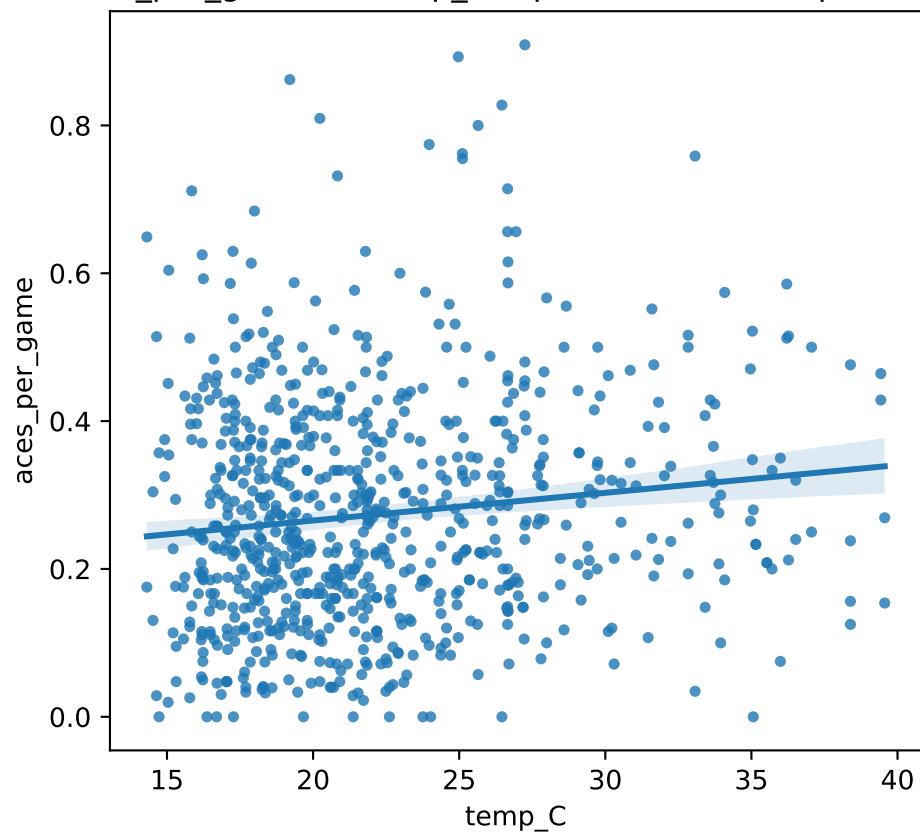
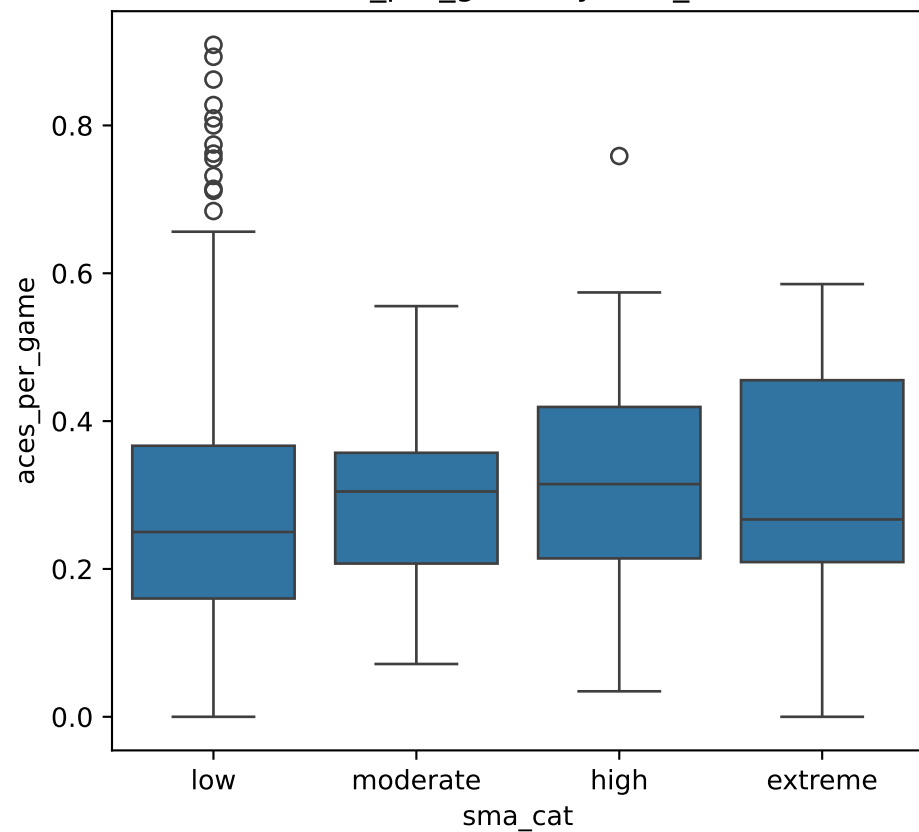
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.128 | 0.009 | 0.142    |
| high     | 0.128   | 1.0   | 1.0   | 1.0      |
| low      | 0.009   | 1.0   | 1.0   | 1.0      |
| moderate | 0.142   | 1.0   | 1.0   | 1.0      |





Dunn Post-hoc (p-değerleri)  
aces\_per\_game by wbgt\_cat

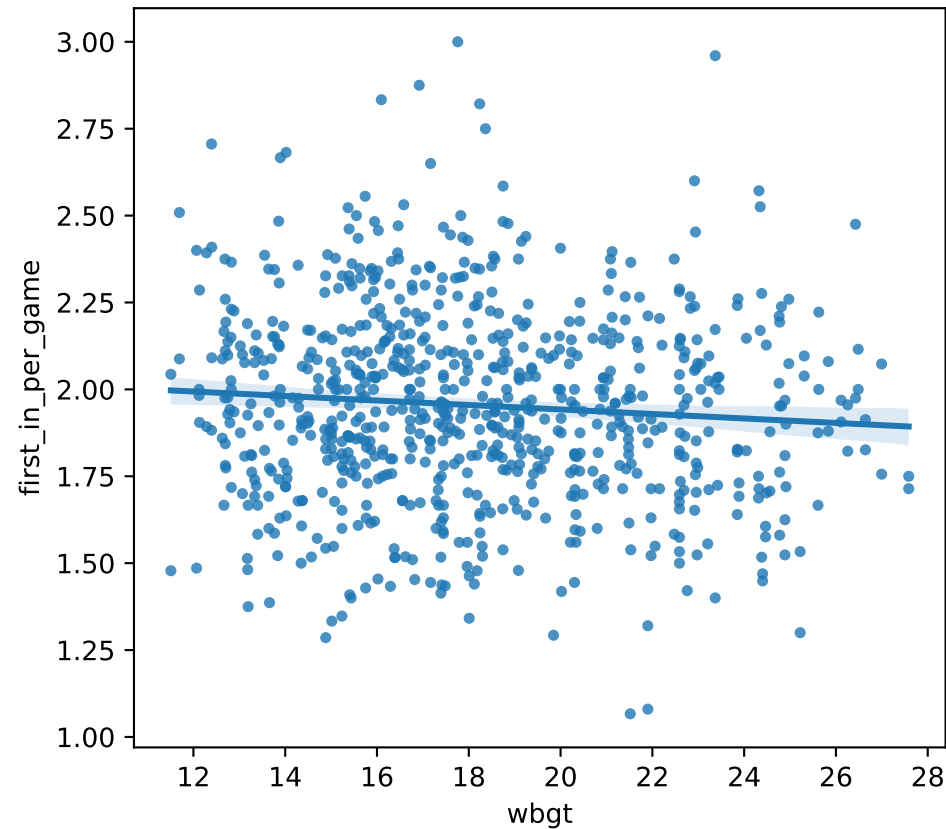
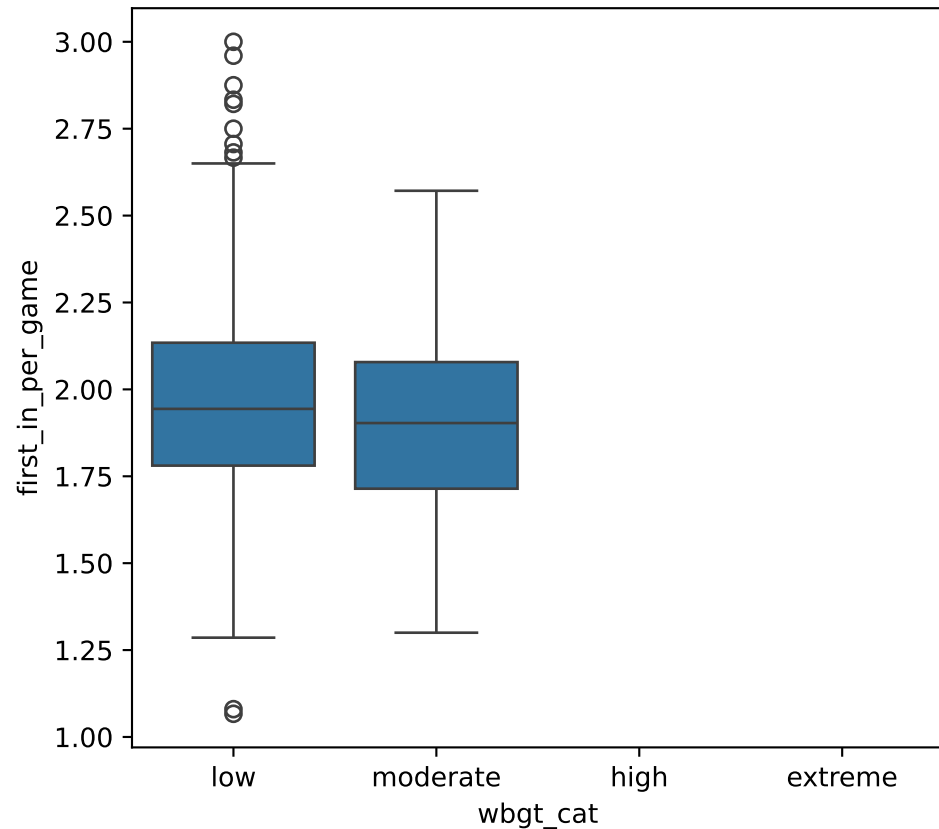
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.015    |
| moderate | 0.015 | 1.0      |



# Dunn Post-hoc (p-değerleri) aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.721 | 1.0      |
| high     | 1.0     | 1.0   | 0.161 | 1.0      |
| low      | 0.721   | 0.161 | 1.0   | 0.78     |
| moderate | 1.0     | 1.0   | 0.78  | 1.0      |

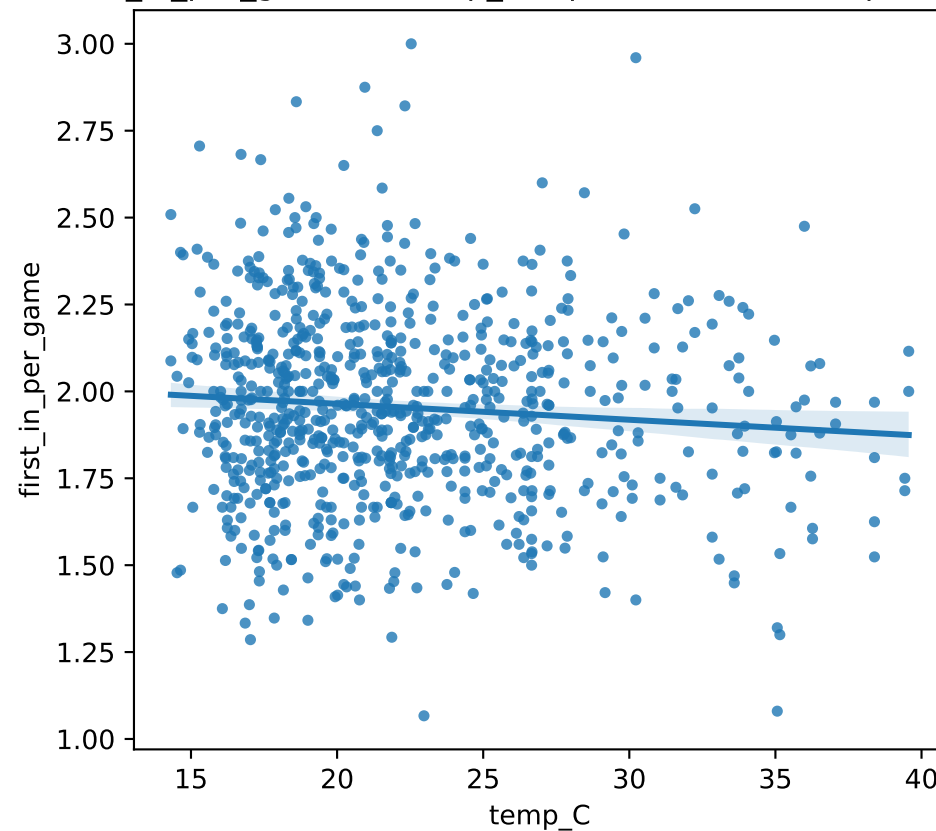
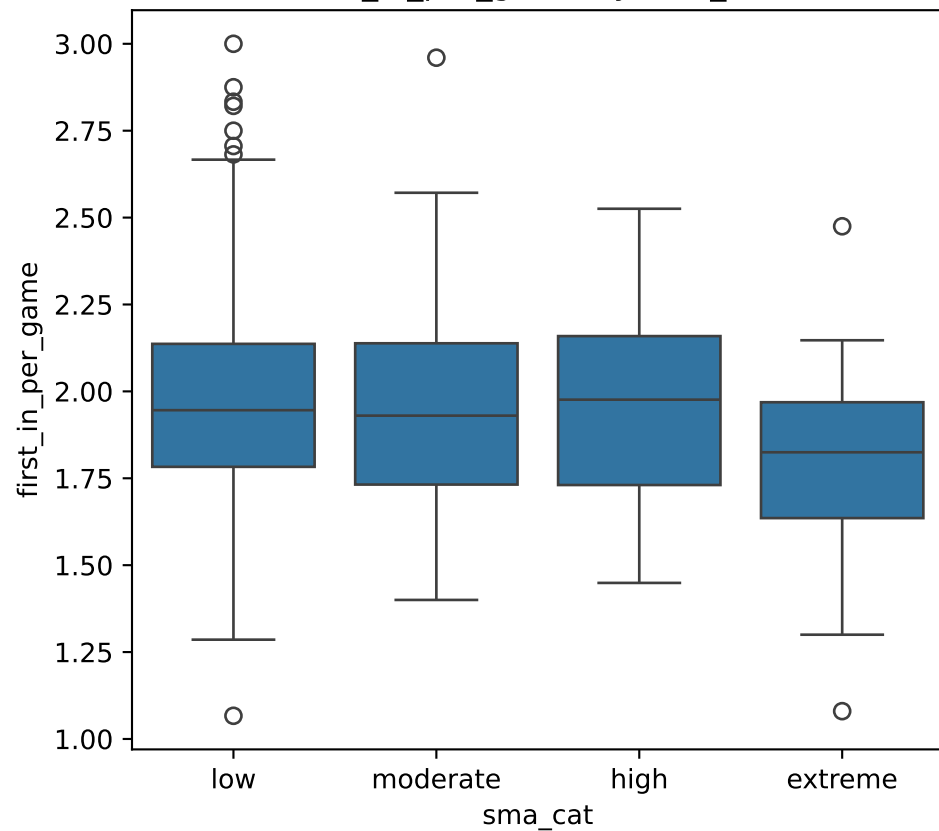
first\_in\_per\_game - wbgt\_cat  
Kruskal p=0.141, Jonckheere p=NA, Corr p=0.028622450190804744  
first\_in\_per\_game by wbgt\_cat  
first\_in\_per\_game vs wbgt (Spearman r=-0.08, p=0.029)



Dunn Post-hoc (p-değerleri)  
first\_in\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.141    |
| moderate | 0.141 | 1.0      |

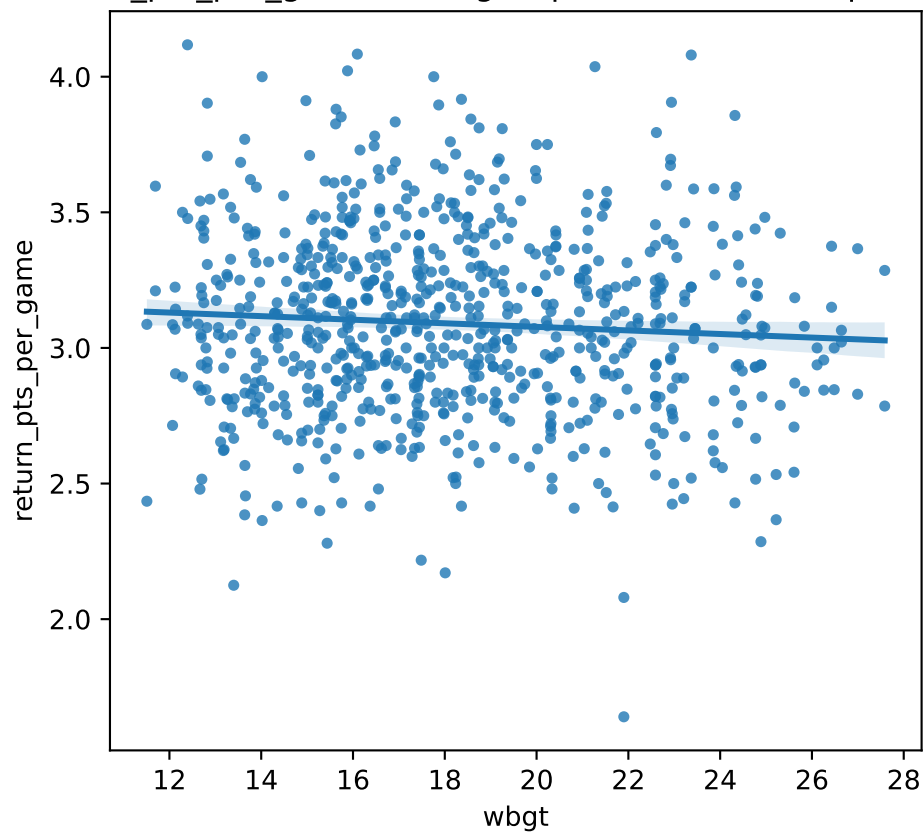
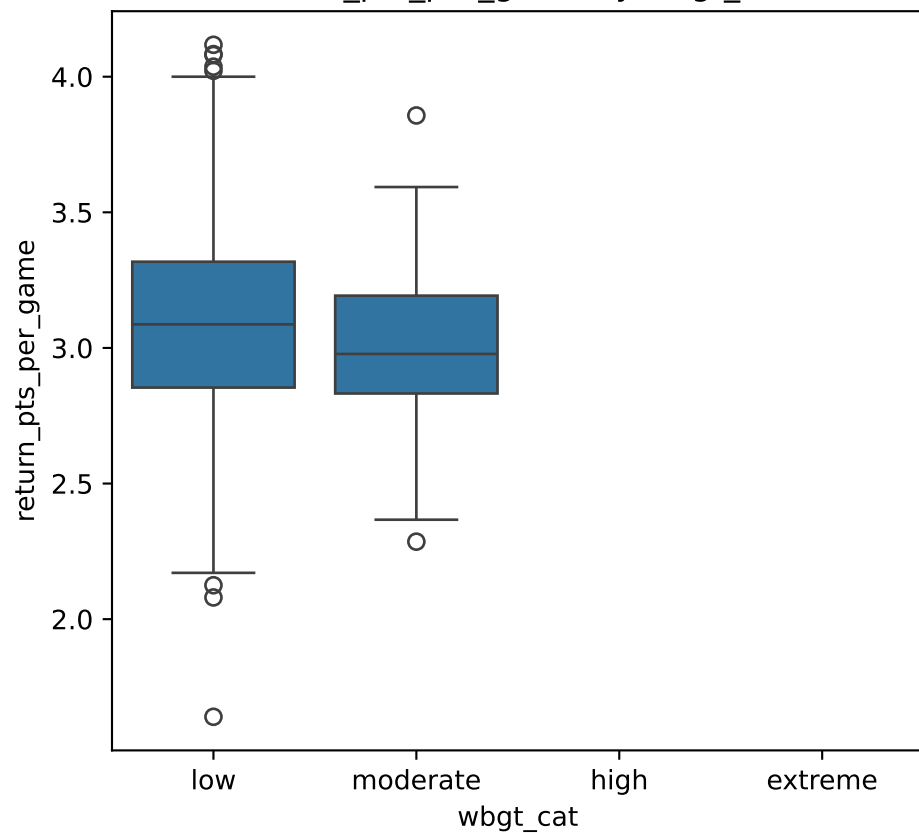
first\_in\_per\_game - sma\_cat  
Kruskal p=0.049, Jonckheere p=NA, Corr p=0.052033011060212506  
first\_in\_per\_game by sma\_cat  
first\_in\_per\_game vs temp\_C (Spearman r=-0.07, p=0.052)



Dunn Post-hoc (p-değerleri)  
first\_in\_per\_game by sma\_cat

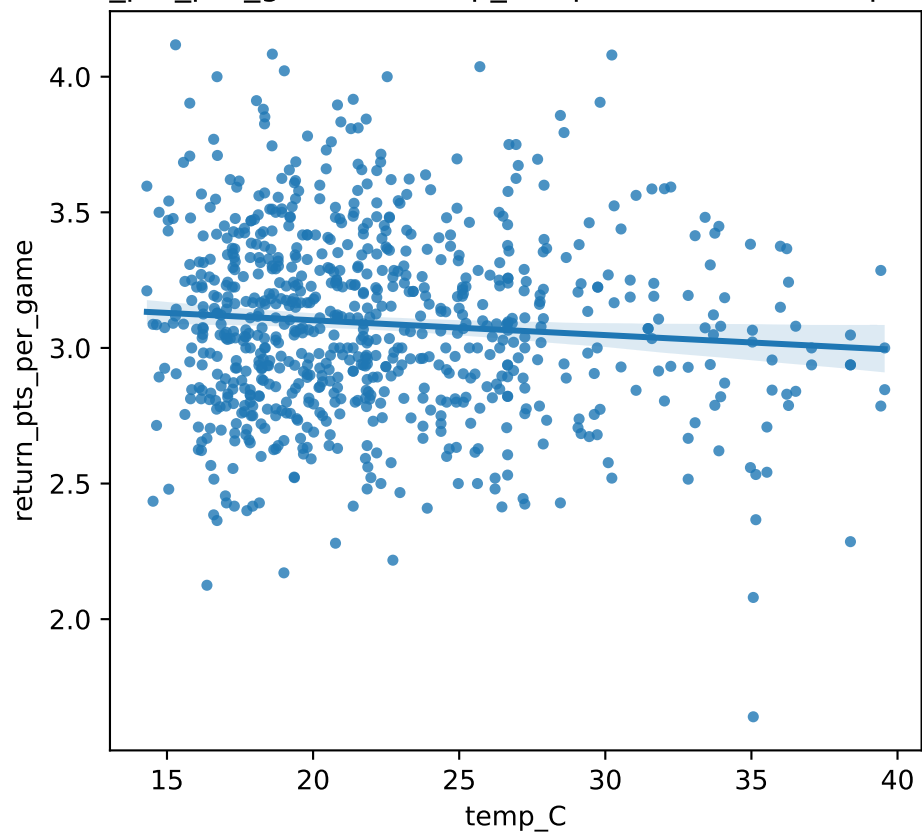
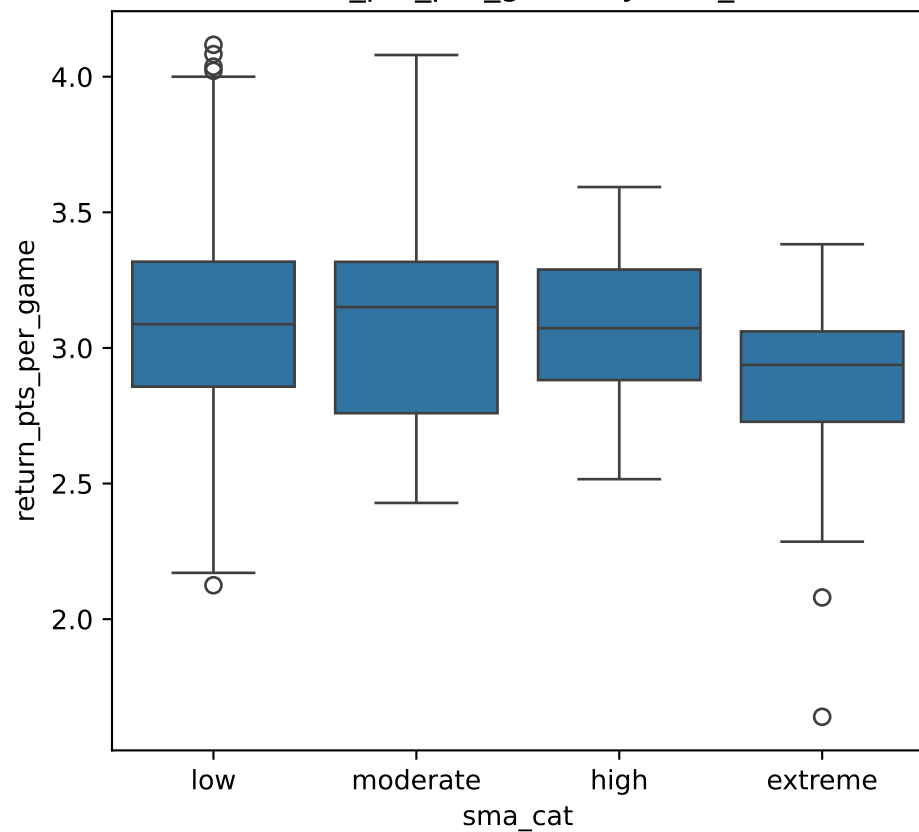
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.289 | 0.032 | 0.439    |
| high     | 0.289   | 1.0   | 1.0   | 1.0      |
| low      | 0.032   | 1.0   | 1.0   | 1.0      |
| moderate | 0.439   | 1.0   | 1.0   | 1.0      |





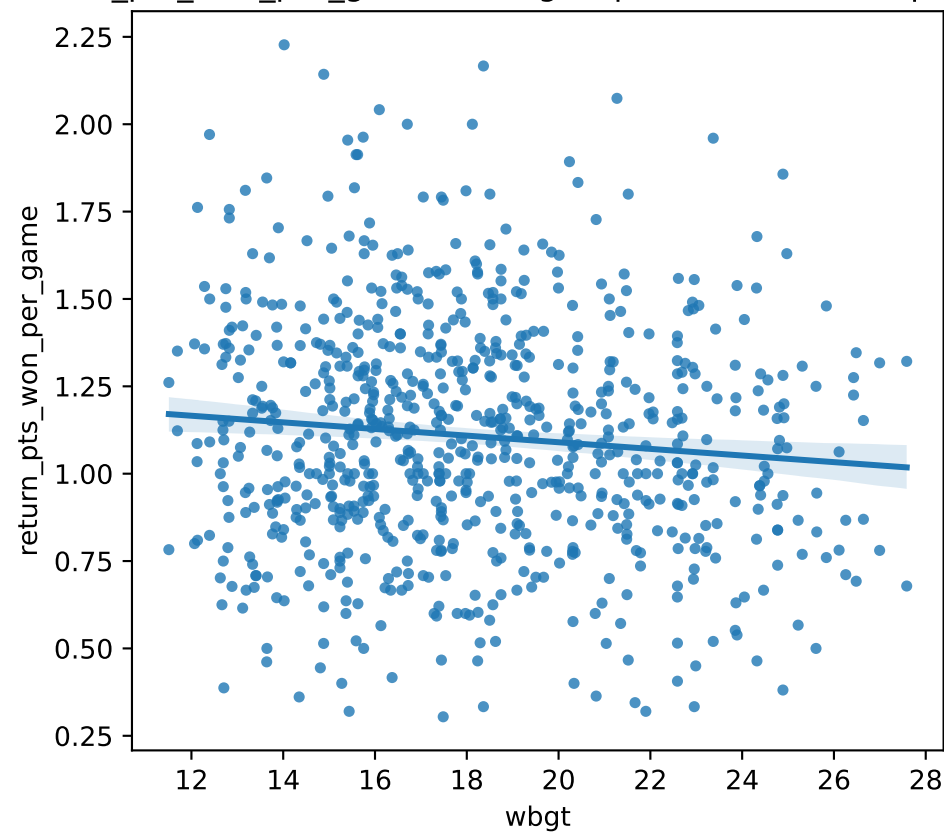
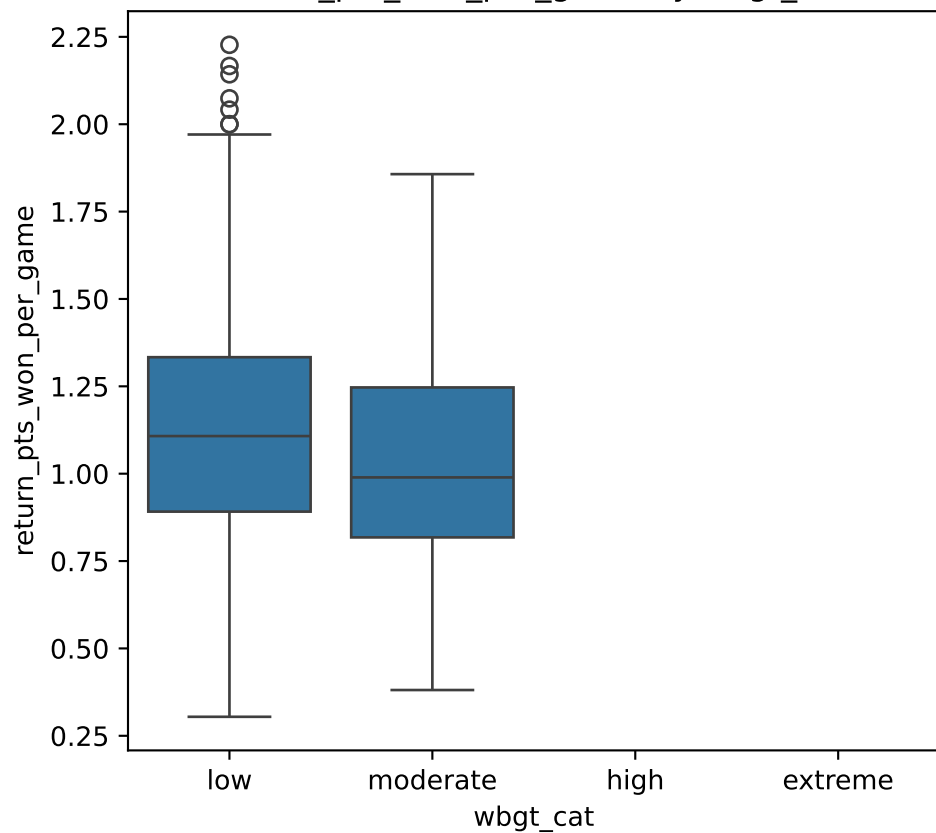
Dunn Post-hoc (p-değerleri)  
return\_pts\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.057    |
| moderate | 0.057 | 1.0      |



Dunn Post-hoc (p-değerleri)  
return\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.128 | 0.009 | 0.142    |
| high     | 0.128   | 1.0   | 1.0   | 1.0      |
| low      | 0.009   | 1.0   | 1.0   | 1.0      |
| moderate | 0.142   | 1.0   | 1.0   | 1.0      |

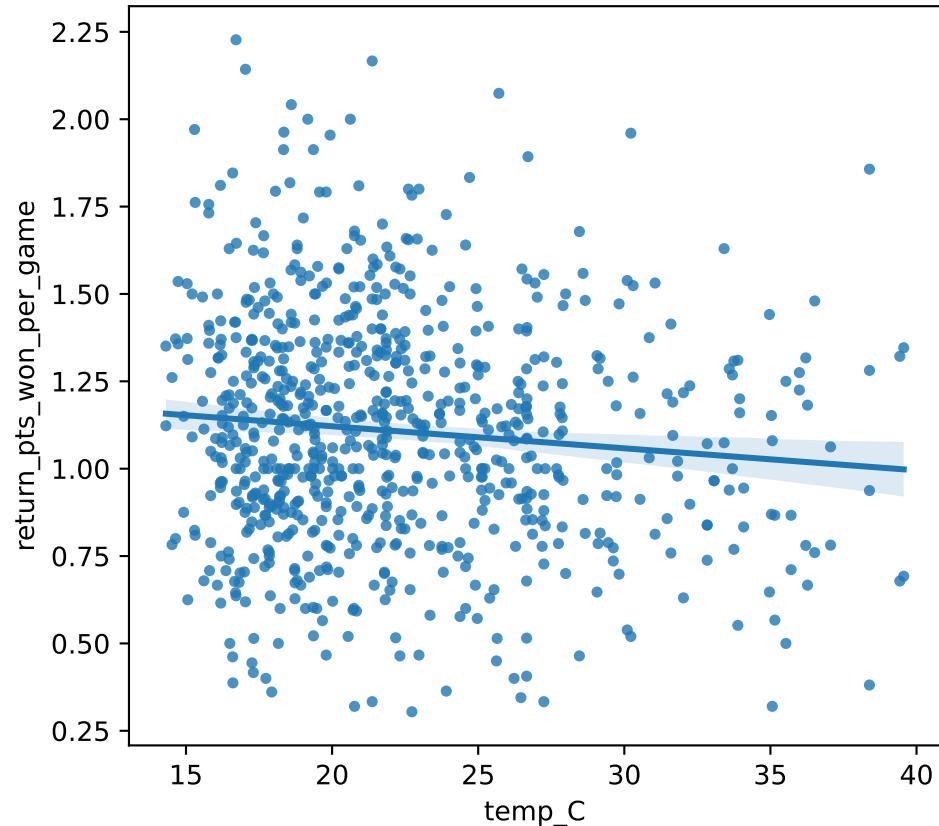
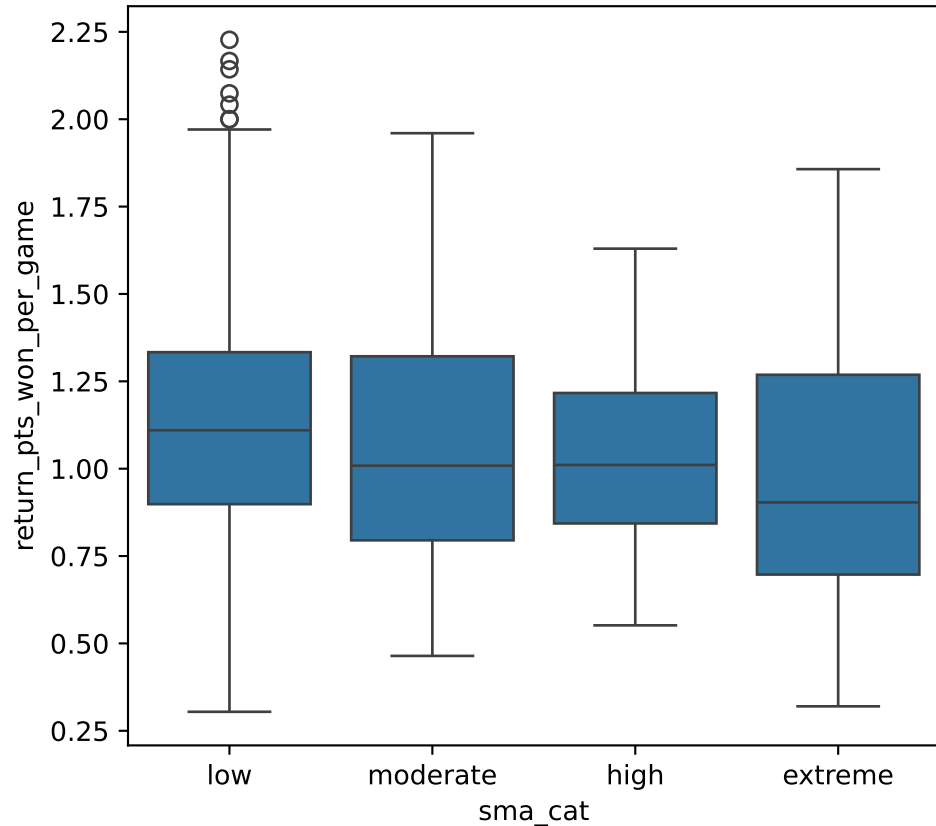


return\_pts\_won\_per\_game - wbgc\_cat  
Kruskal p=0.0553, Jonckheere p=NA, Corr p=0.022657008575641915  
return\_pts\_won\_per\_game vs wbgc (Spearman r=-0.08, p=0.023)

Dunn Post-hoc (p-değerleri)  
return\_pts\_won\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.055    |
| moderate | 0.055 | 1.0      |

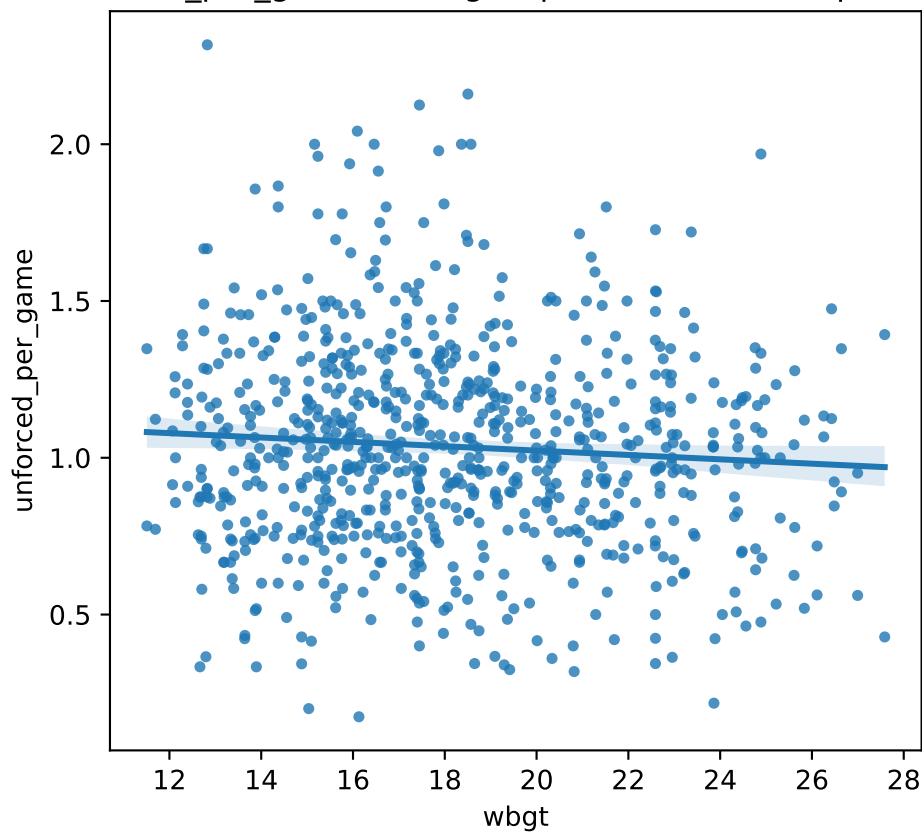
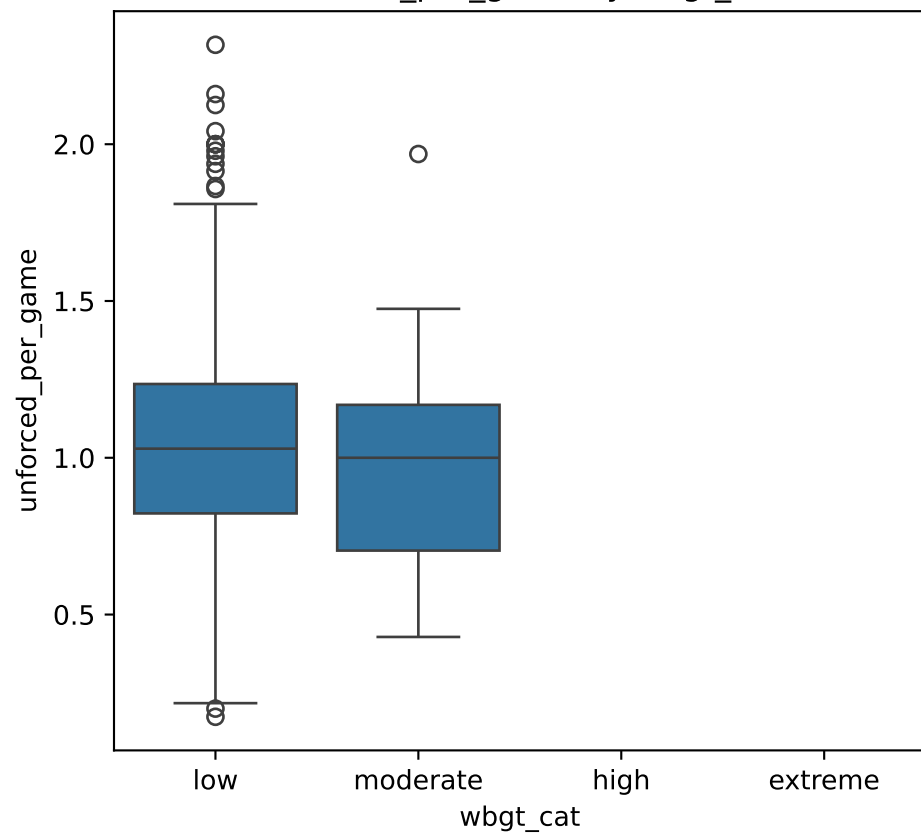
return\_pts\_won\_per\_game - sma\_cat  
Kruskal p=0.0961, Jonckheere p=NA, Corr p=0.04948167279138117  
return\_pts\_won\_per\_game by sma\_cat  
return\_pts\_won\_per\_game vs temp\_C (Spearman r=-0.07, p=0.049)



Dunn Post-hoc (p-değerleri)  
return\_pts\_won\_per\_game by sma\_cat

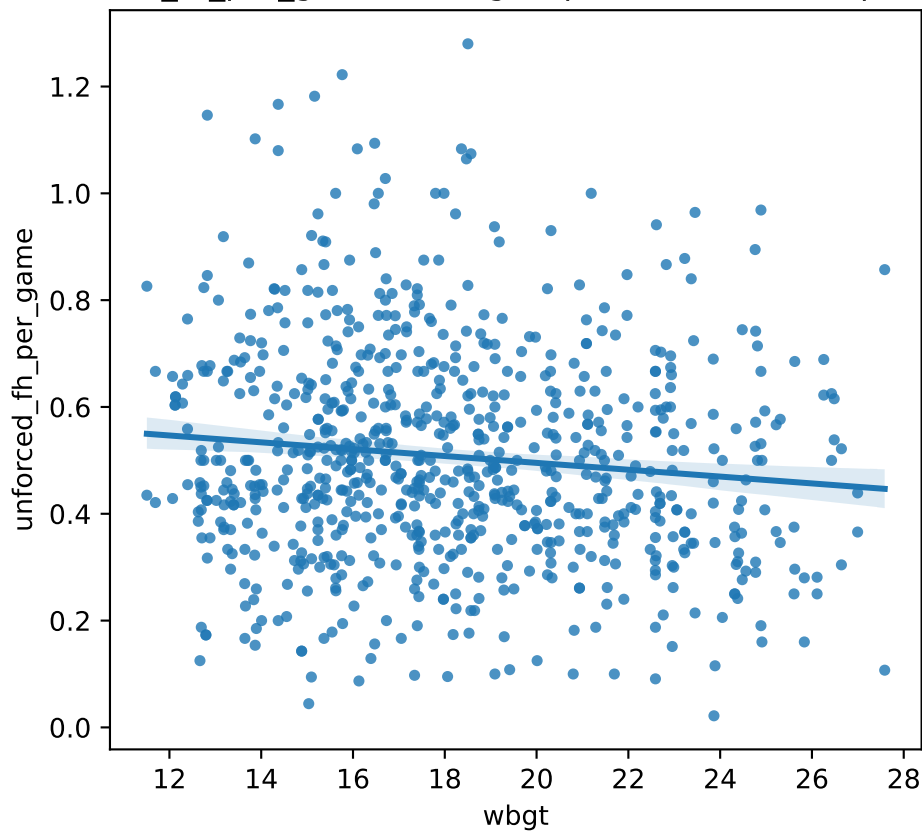
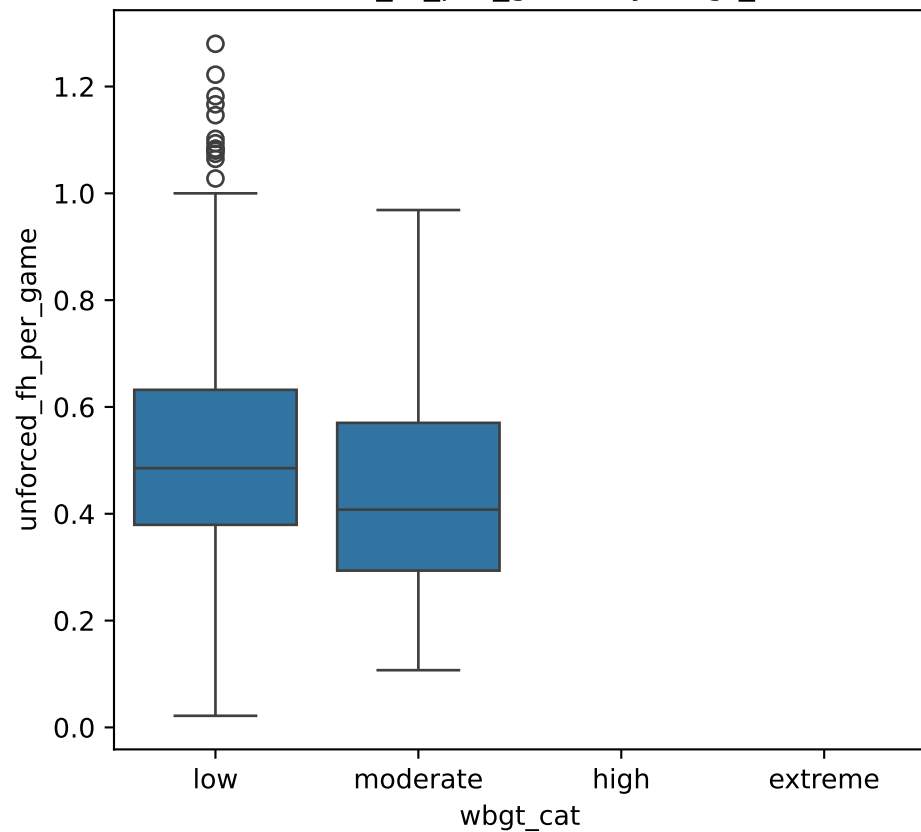
|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.201 | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 0.201   | 1.0  | 1.0   | 1.0      |
| moderate | 1.0     | 1.0  | 1.0   | 1.0      |





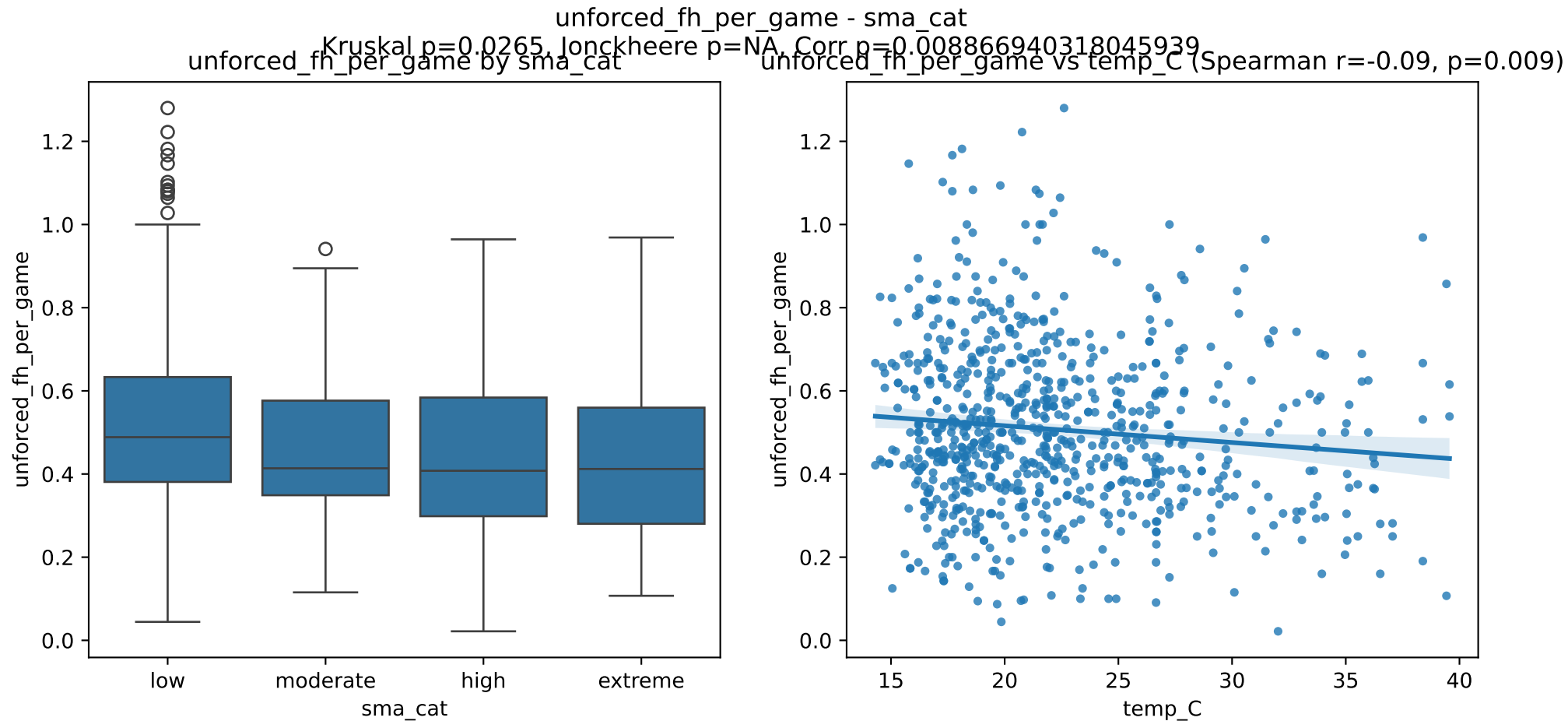
Dunn Post-hoc (p-değerleri)  
unforced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.082    |
| moderate | 0.082 | 1.0      |



Dunn Post-hoc (p-değerleri)  
unforced\_fh\_per\_game by wbgt\_cat

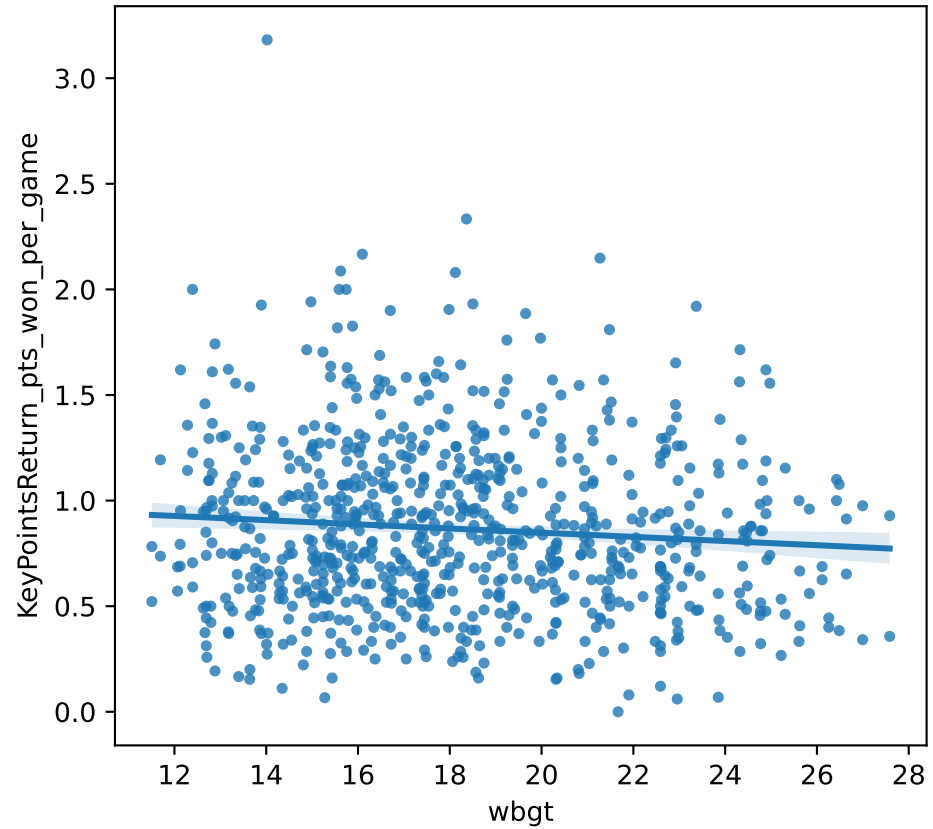
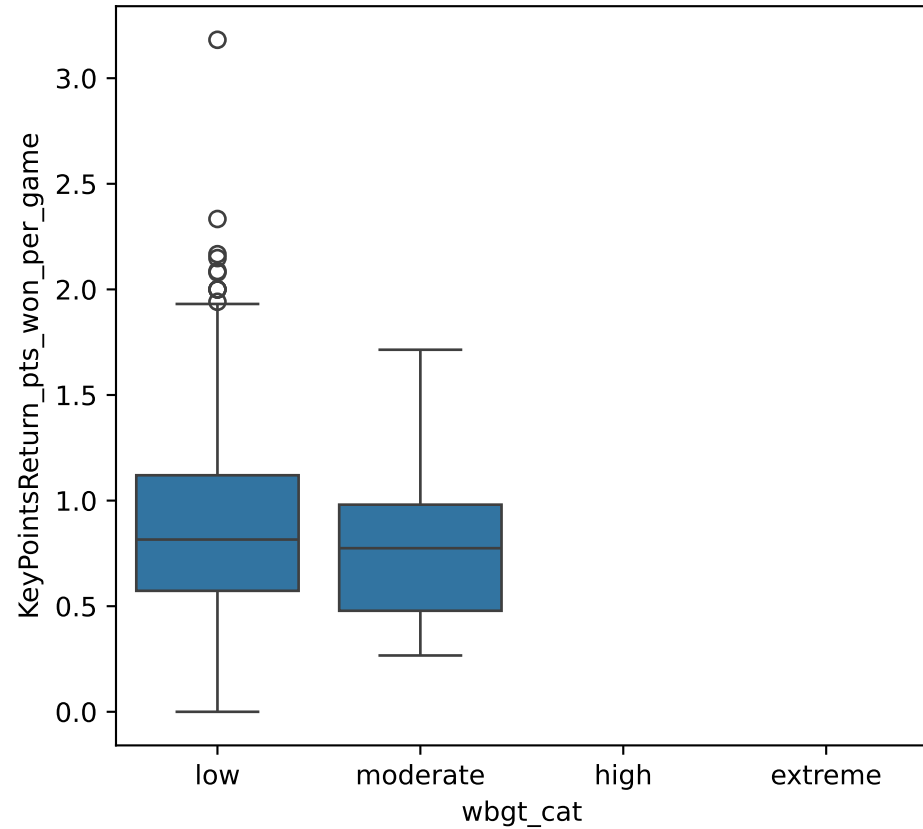
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.009    |
| moderate | 0.009 | 1.0      |



Dunn Post-hoc (p-değerleri)  
unforced\_fh\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.234 | 1.0      |
| high     | 1.0     | 1.0   | 0.378 | 1.0      |
| low      | 0.234   | 0.378 | 1.0   | 0.765    |
| moderate | 1.0     | 1.0   | 0.765 | 1.0      |

KeyPointsReturn\_pts\_won\_per\_game - wbgt\_cat  
Kruskal p=0.0843, Jonckheere p=NA, Corr p=0.05742962482152382  
KeyPointsReturn\_pts\_won\_per\_game by wbgt\_cat  
KeyPointsReturn\_pts\_won\_per\_game vs wbgt (Spearman r=-0.07, p=0.057)

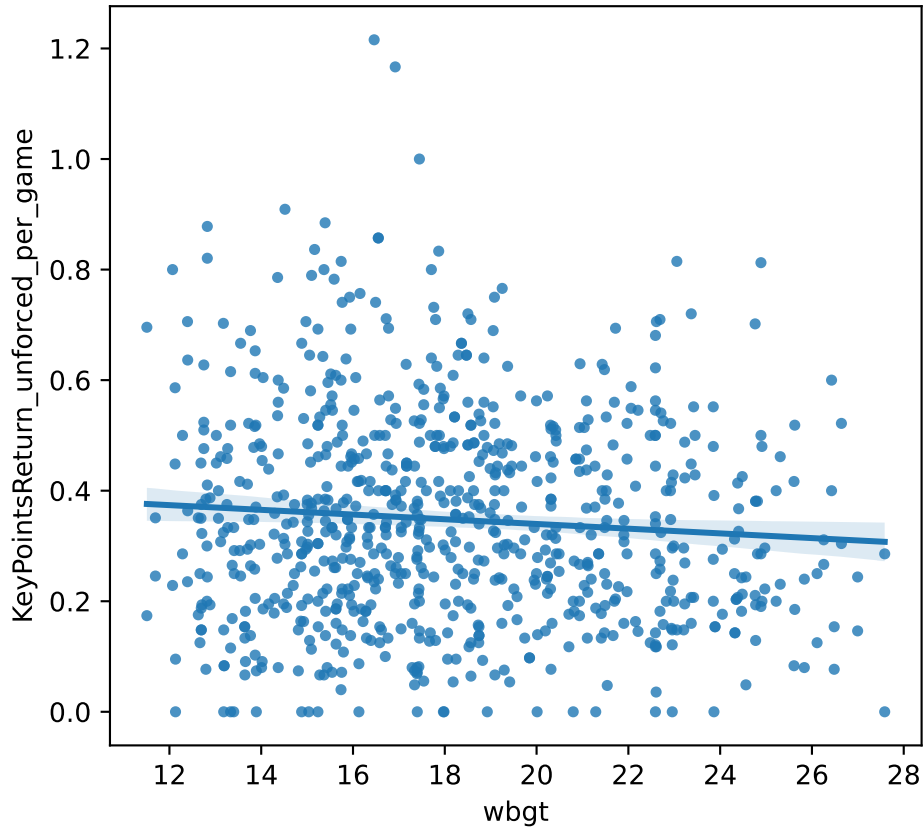
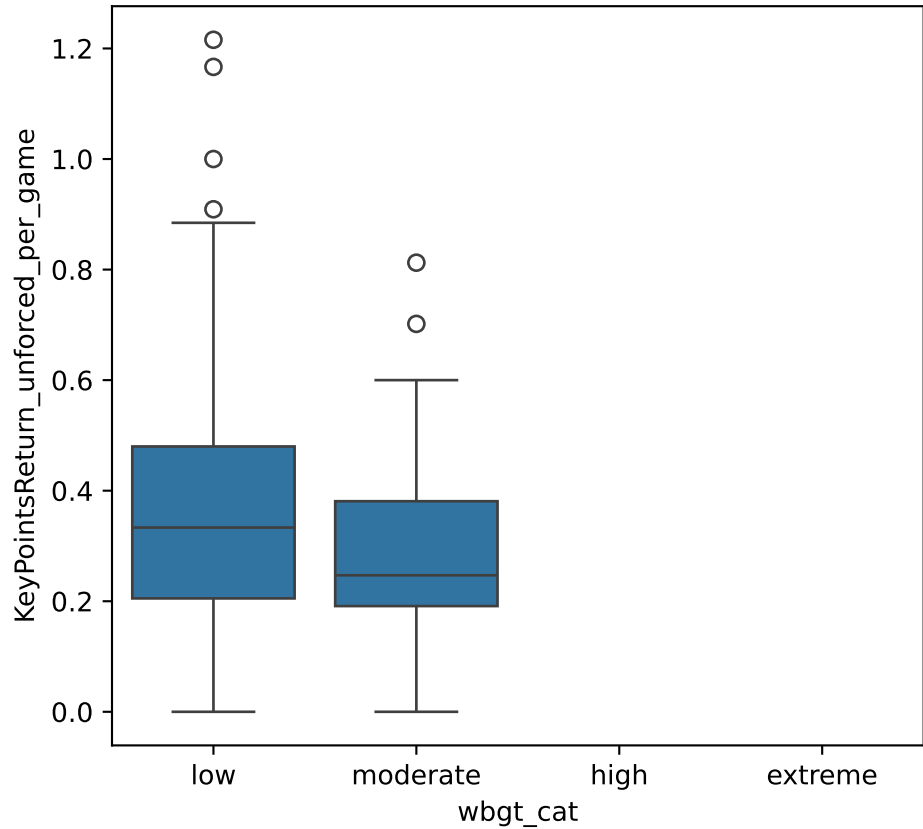


Dunn Post-hoc (p-değerleri)  
KeyPointsReturn\_pts\_won\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.084    |
| moderate | 0.084 | 1.0      |



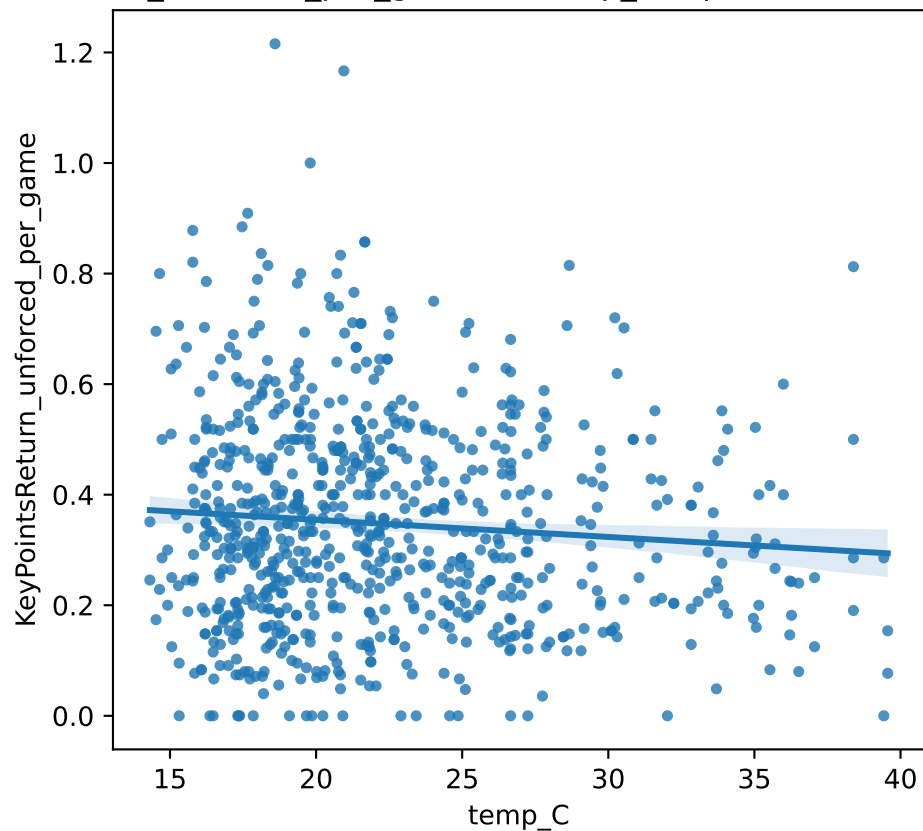
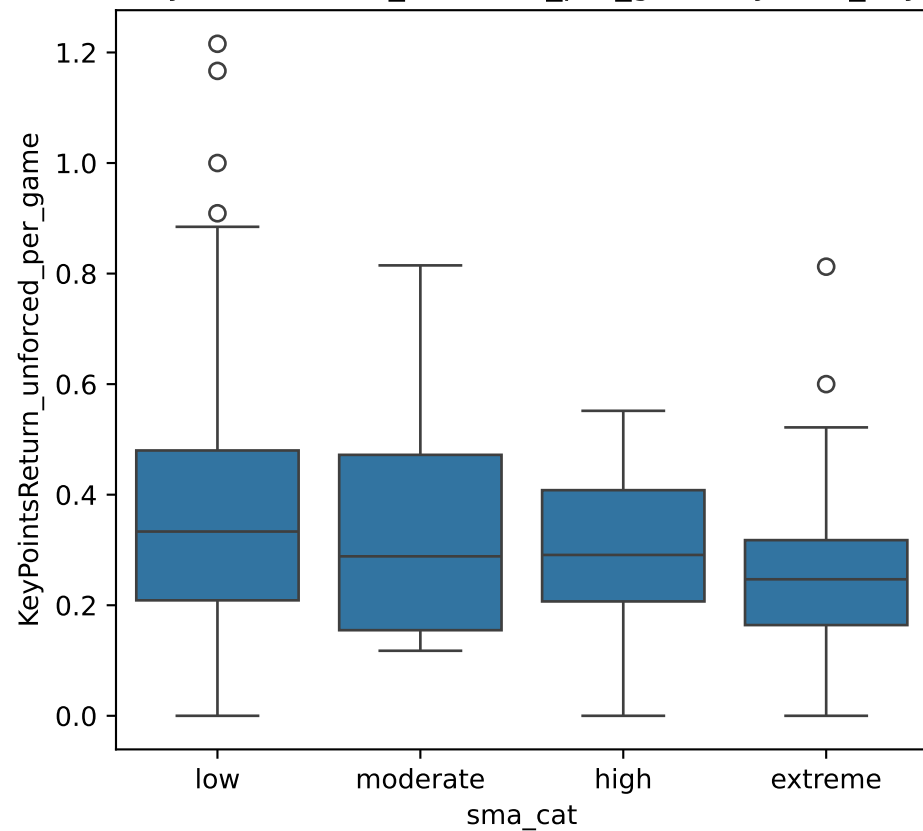
KeyPointsReturn\_unforced\_per\_game - wbgt\_cat  
Kruskal p=0.0055, Jonckheere p=NA, Corr p=0.147906098326561  
KeyPointsReturn\_unforced\_per\_game by wbgt\_cat  
KeyPointsReturn\_unforced\_per\_game vs wbgt (Spearman r=-0.05, p=0.148)



Dunn Post-hoc (p-değerleri)  
KeyPointsReturn\_unforced\_per\_game by wbgc\_cat

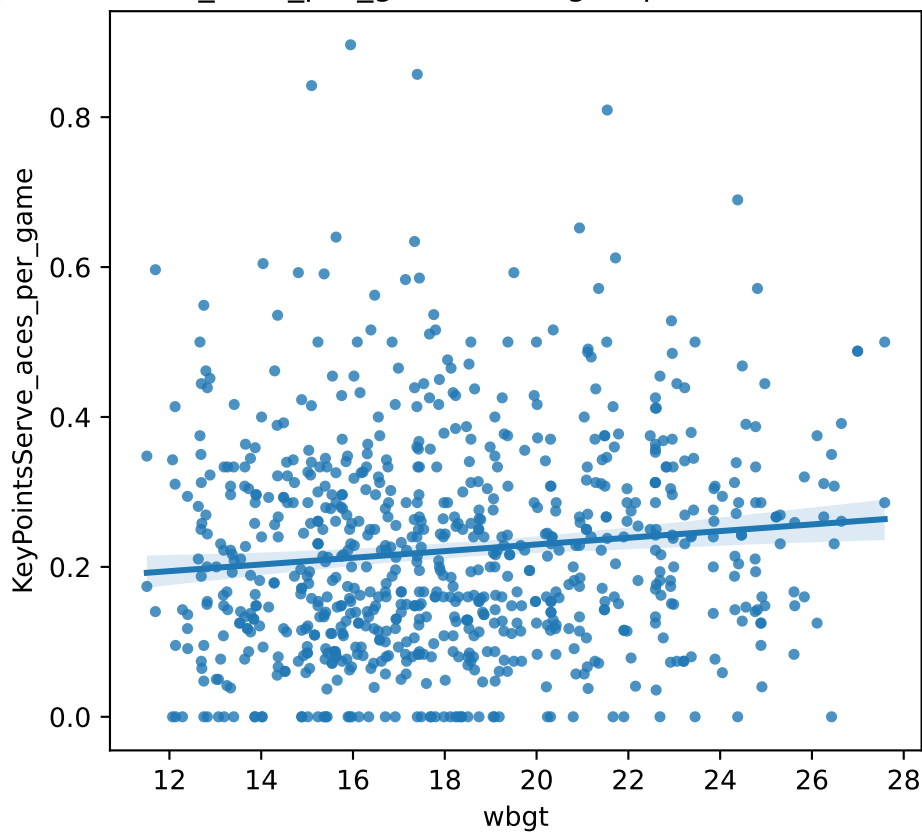
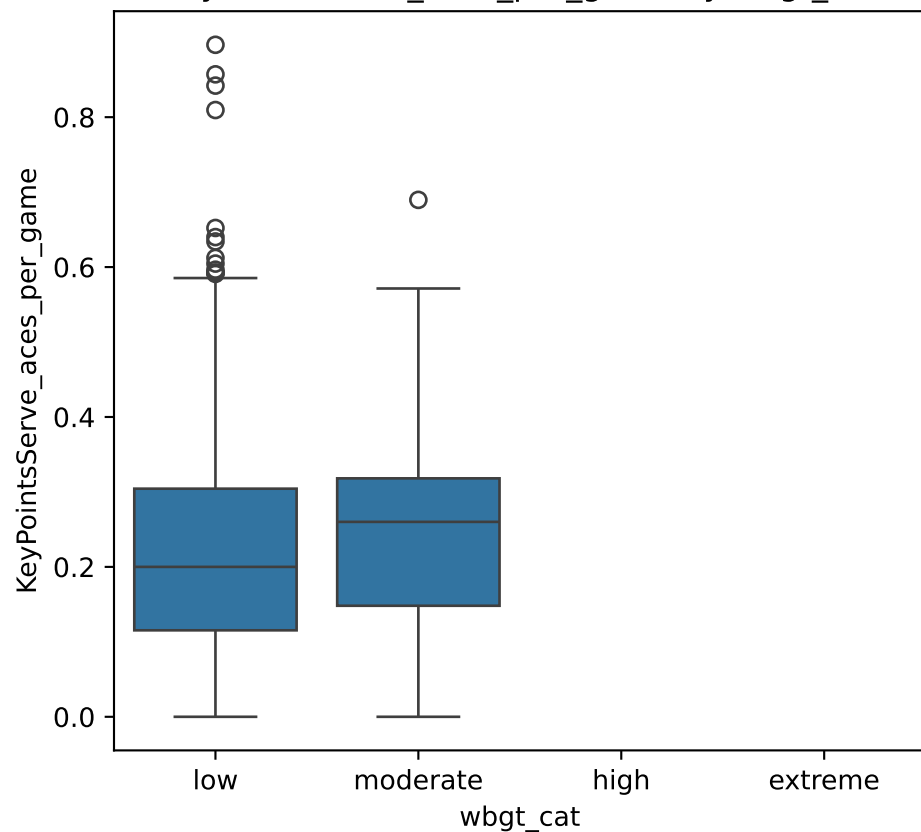
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.006    |
| moderate | 0.006 | 1.0      |

KeyPointsReturn\_unforced\_per\_game - sma\_cat  
Kruskal p=0.0699, Jonckheere p=NA, Corr p=0.18118768021527615  
KeyPointsReturn\_unforced\_per\_game by sma\_cat  
KeyPointsReturn\_unforced\_per\_game vs temp\_C (Spearman r=-0.05, p=0.181)



Dunn Post-hoc (p-değerleri)  
KeyPointsReturn\_unforced\_per\_game by sma\_cat

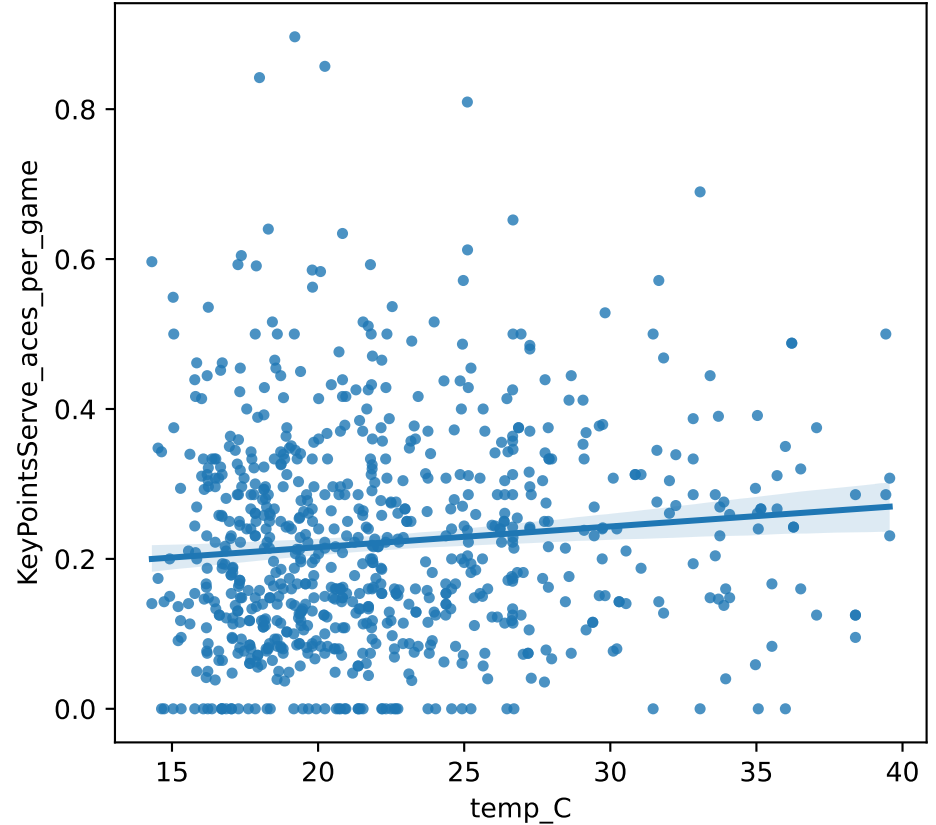
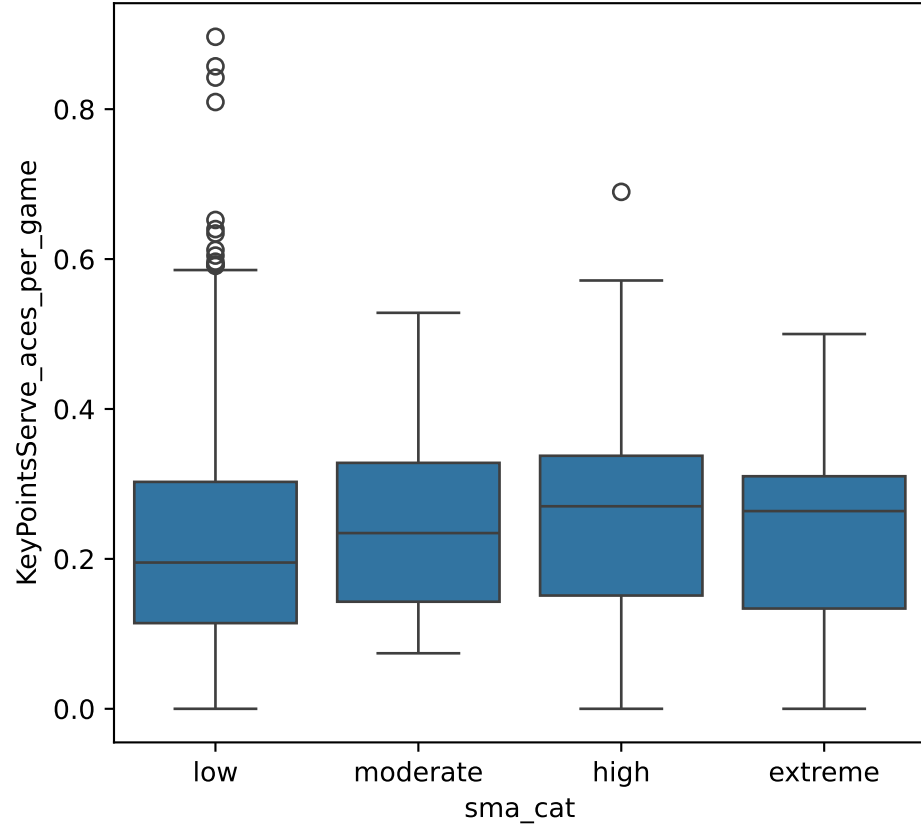
|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.097 | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 0.097   | 1.0  | 1.0   | 1.0      |
| moderate | 1.0     | 1.0  | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_aces\_per\_game by wbgmt\_cat

|          | low  | moderate |
|----------|------|----------|
| low      | 1.0  | 0.03     |
| moderate | 0.03 | 1.0      |

KeyPointsServe\_aces\_per\_game - sma\_cat  
Kruskal p=0.0487, Jonckheere p=NA, Corr p=0.0015611383245688819  
KeyPointsServe\_aces\_per\_game by sma\_cat    KeyPointsServe\_aces\_per\_game vs temp\_C (Spearman r=0.11, p=0.002)

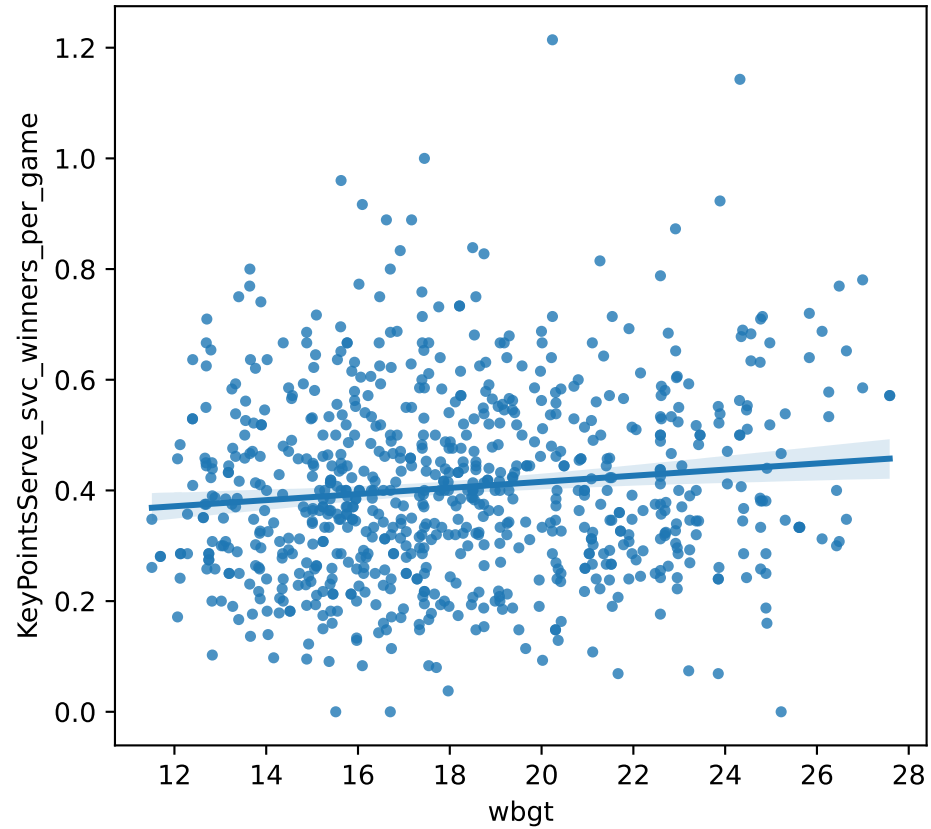
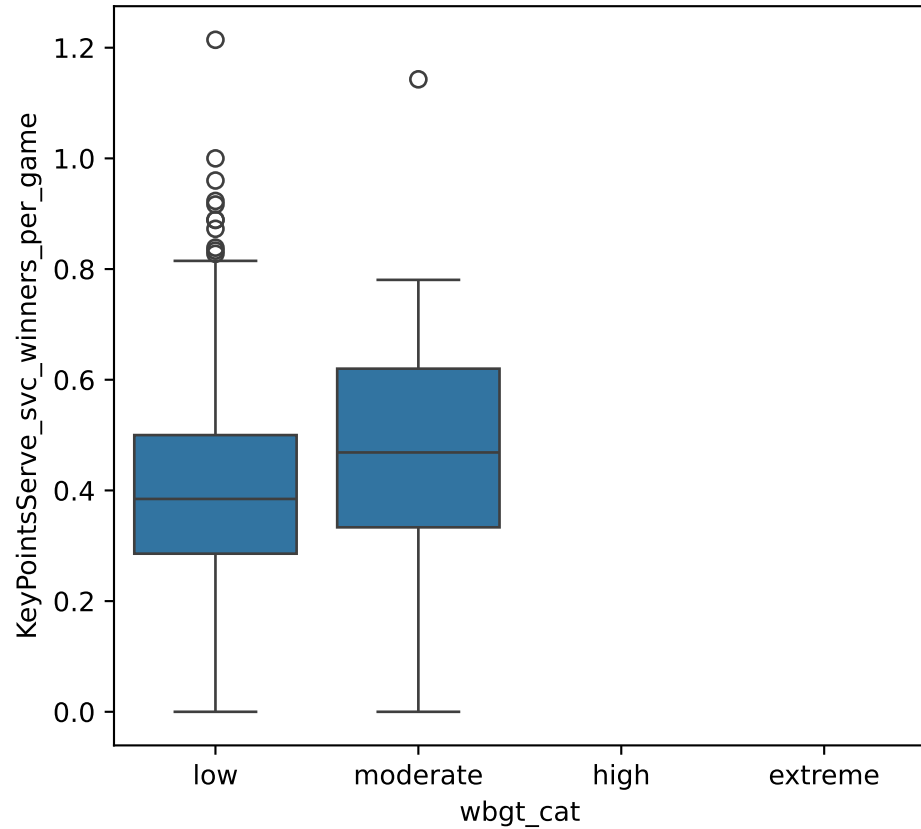


Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.925 | 1.0      |
| high     | 1.0     | 1.0   | 0.172 | 1.0      |
| low      | 0.925   | 0.172 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |



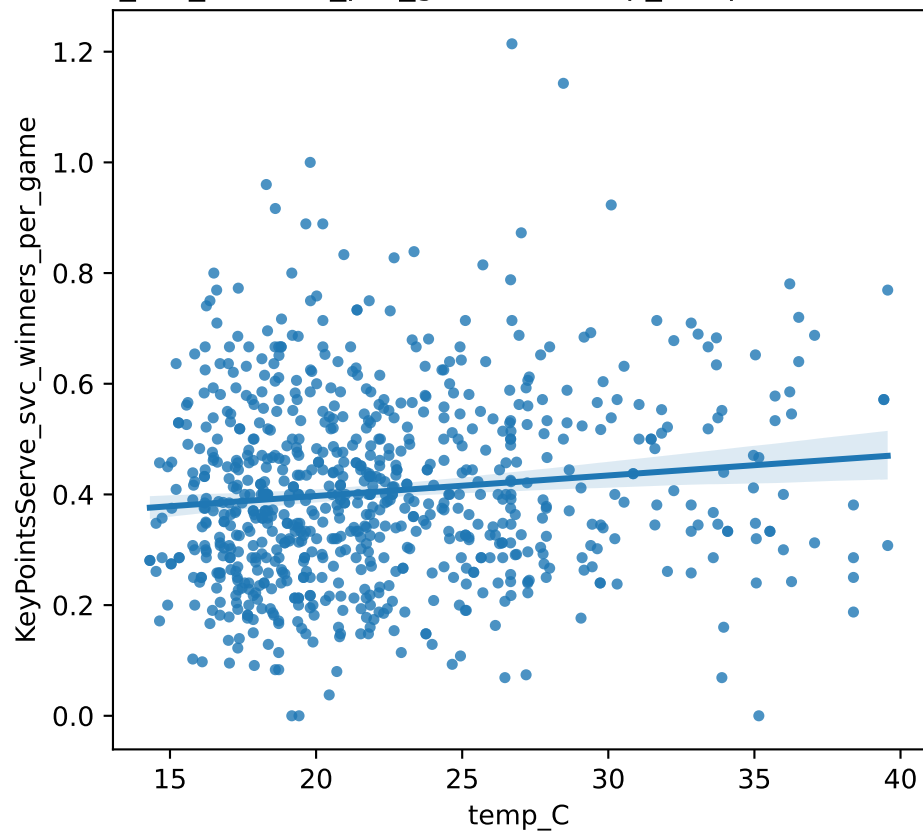
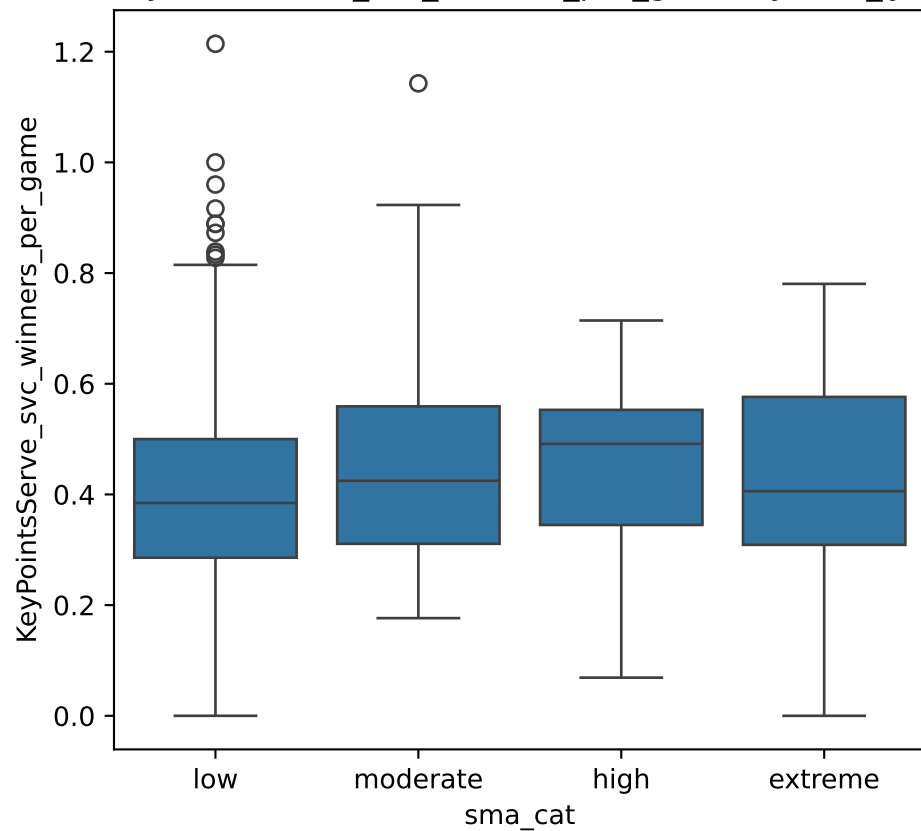
KeyPointsServe\_svc\_winners\_per\_game - wbgmt\_cat  
Kruskal p=0.00177, Jonckheere p=NA, Corr p=0.002297467215772144  
KeyPointsServe\_svc\_winners\_per\_game by wbgmt\_cat  
KeyPointsServe\_svc\_winners\_per\_game vs wbgmt (Spearman r=0.11, p=0.002)



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_svc\_winners\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.002    |
| moderate | 0.002 | 1.0      |

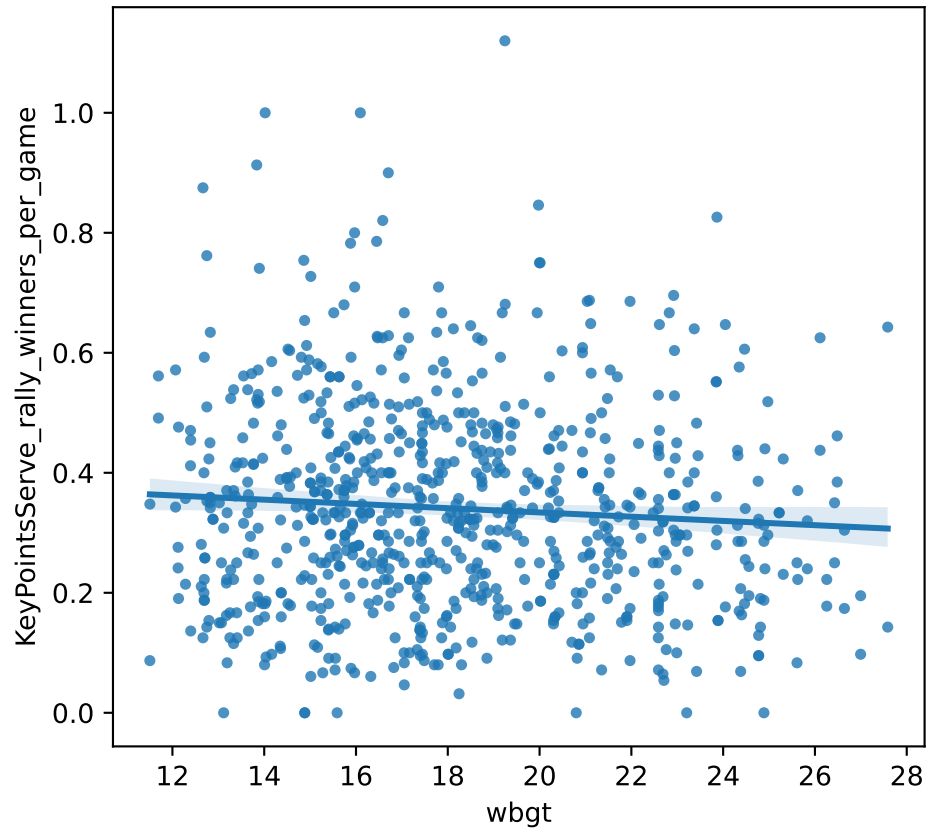
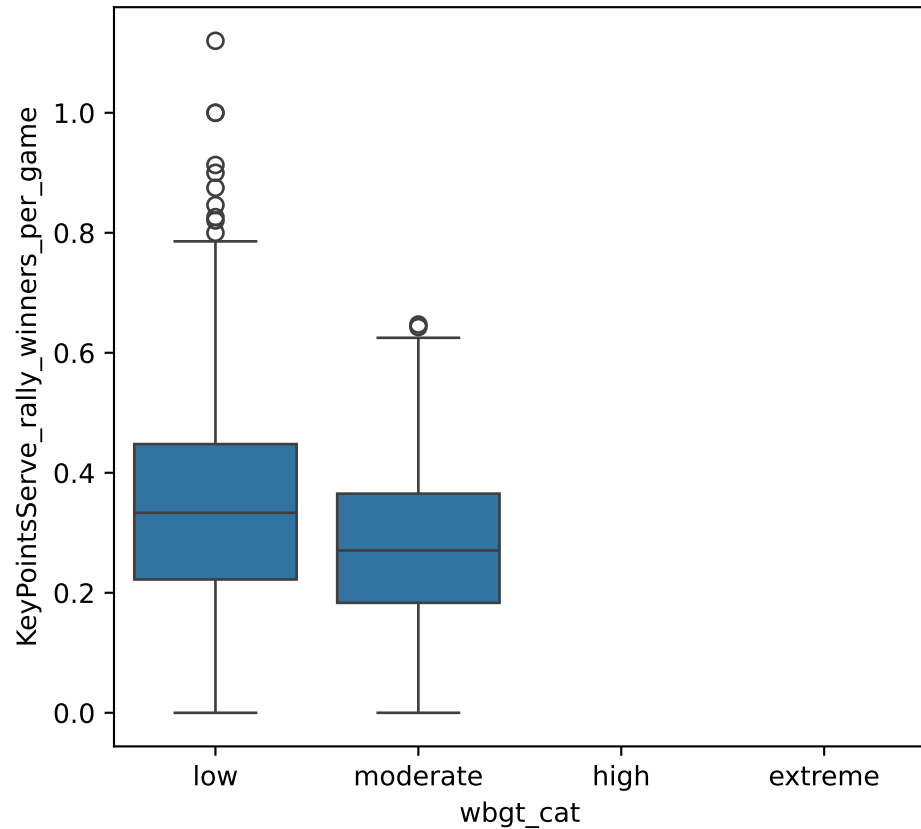
KeyPointsServe\_svc\_winners\_per\_game - sma\_cat  
Kruskal p=0.0395, Jonckheere p=NA, Corr p=0.0017191099157021386  
KeyPointsServe\_svc\_winners\_per\_game by sma\_cat  
KeyPointsServe\_svc\_winners\_per\_game vs temp\_C (Spearman r=0.11, p=0.002)



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_svc\_winners\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 1.0   | 1.0      |
| high     | 1.0     | 1.0  | 0.14  | 1.0      |
| low      | 1.0     | 0.14 | 1.0   | 0.837    |
| moderate | 1.0     | 1.0  | 0.837 | 1.0      |

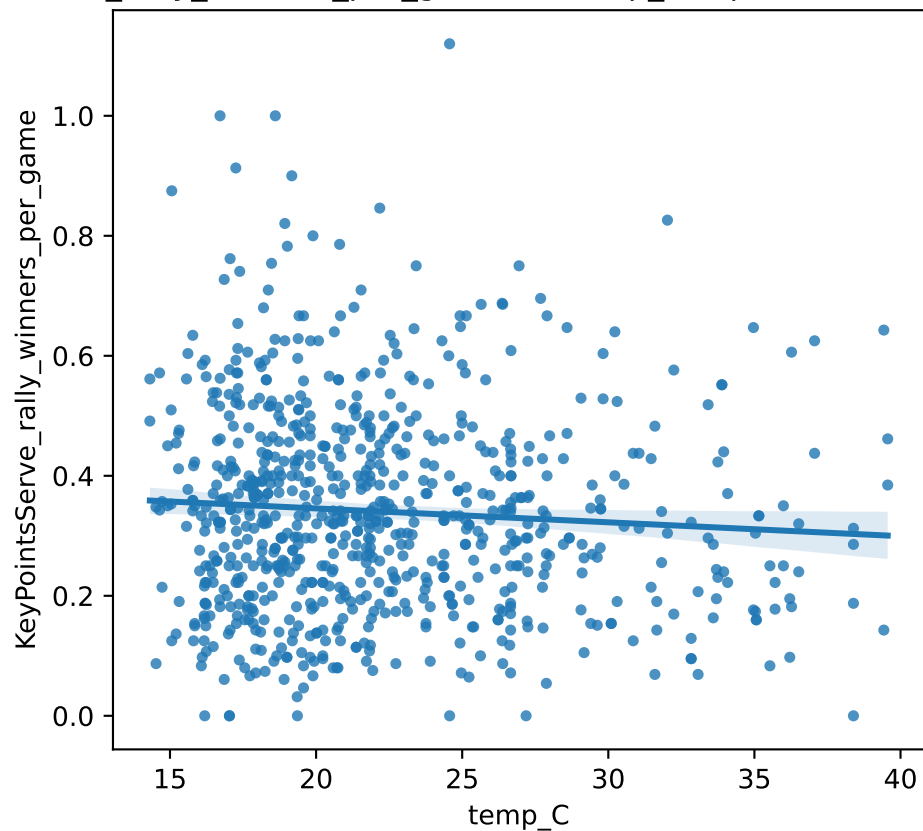
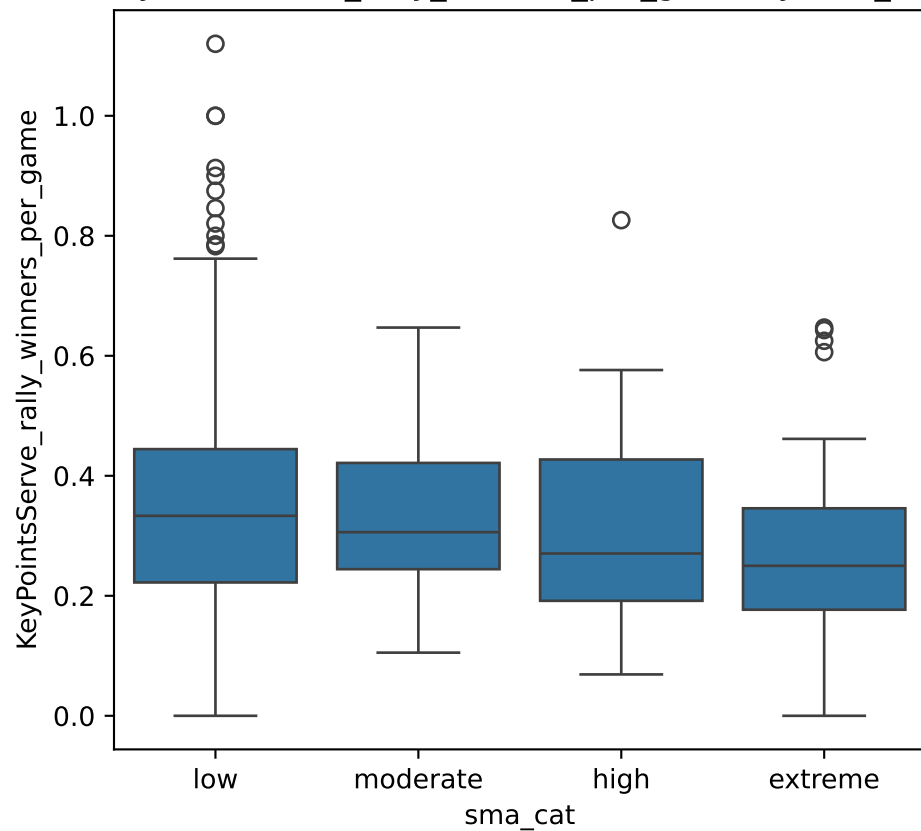
KeyPointsServe\_rally\_winners\_per\_game - wbgt\_cat  
Kruskal p=0.0123, Jonckheere p=NA, Corr p=0.06727507933243793  
KeyPointsServe\_rally\_winners\_per\_game by wbgt\_cat  
KeyPointsServe\_rally\_winners\_per\_game vs wbgt (Spearman r=-0.07, p=0.067)



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_rally\_winners\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.012    |
| moderate | 0.012 | 1.0      |

KeyPointsServe\_rally\_winners\_per\_game - sma\_cat  
Kruskal p=0.12, Jonckheere p=NA, Corr p=0.11529126620900611  
KeyPointsServe\_rally\_winners\_per\_game by sma\_cat  
KeyPointsServe\_rally\_winners\_per\_game vs temp\_C (Spearman r=-0.06, p=0.11529126620900611)

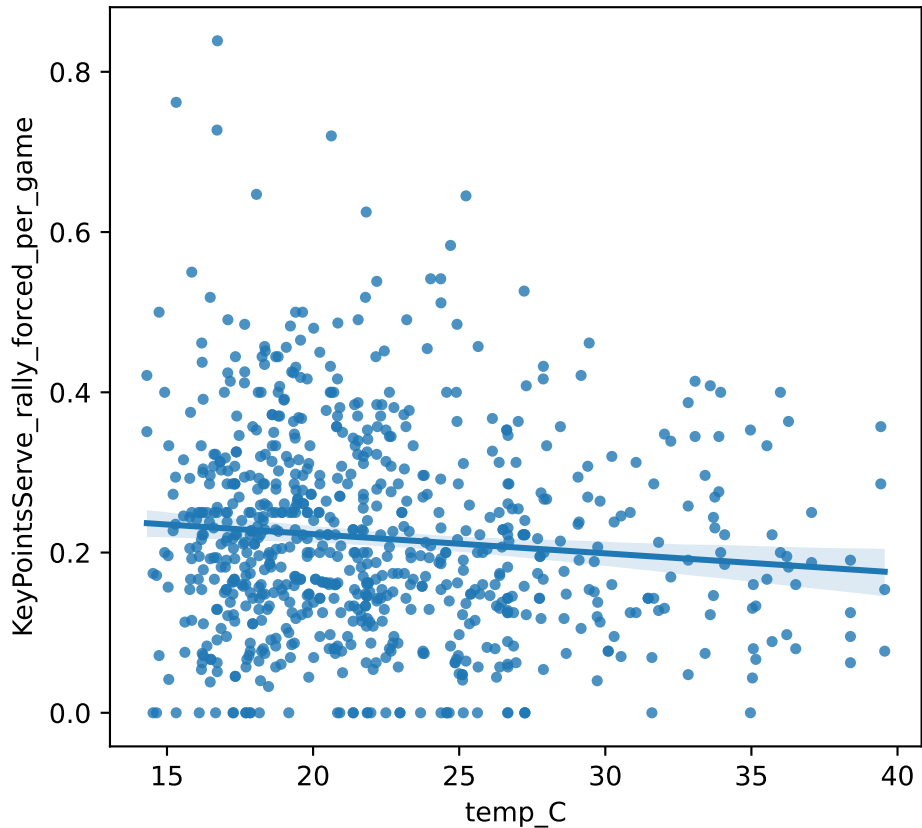
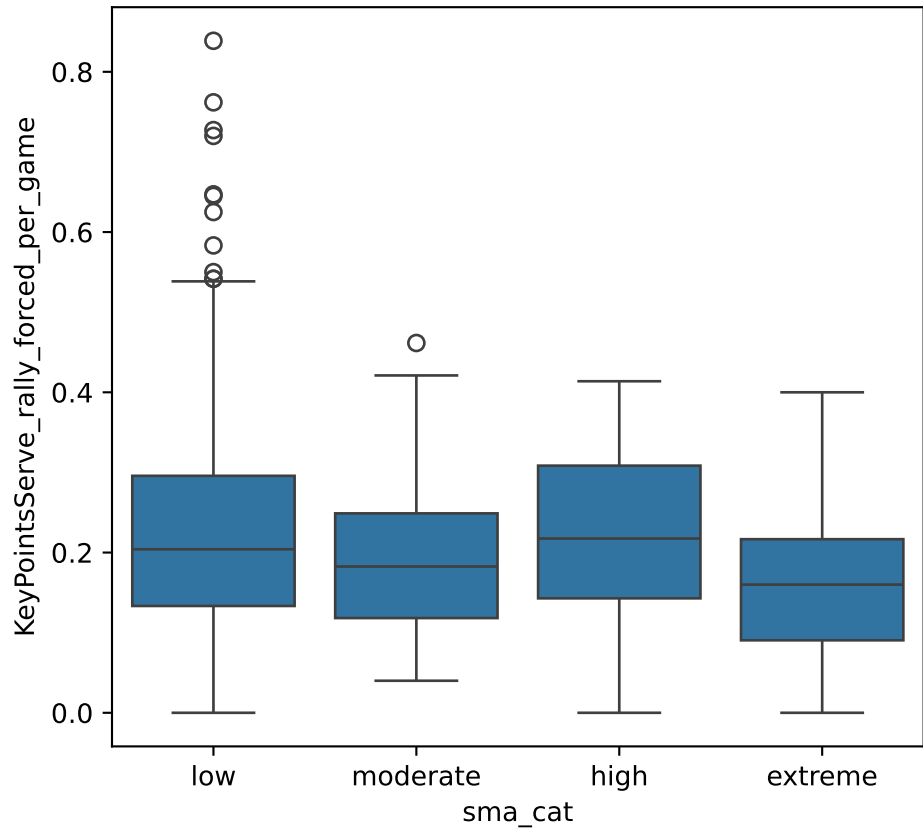


Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_rally\_winners\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.315 | 1.0      |
| high     | 1.0     | 1.0   | 0.767 | 1.0      |
| low      | 0.315   | 0.767 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |



KeyPointsServe\_rally\_forced\_per\_game - sma\_cat  
Kruskal p=0.146, Jonckheere p=NA, Corr p=0.0057924110081727515  
KeyPointsServe\_rally\_forced\_per\_game by sma\_cat  
KeyPointsServe\_rally\_forced\_per\_game vs temp\_C (Spearman r=-0.10, p=0.006)

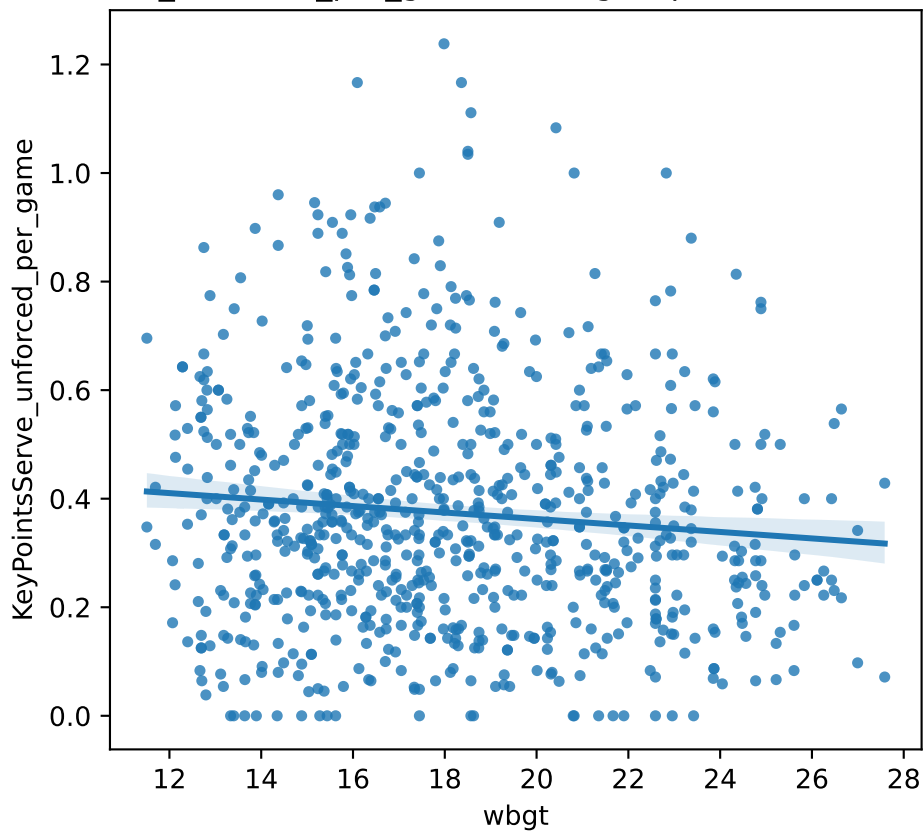
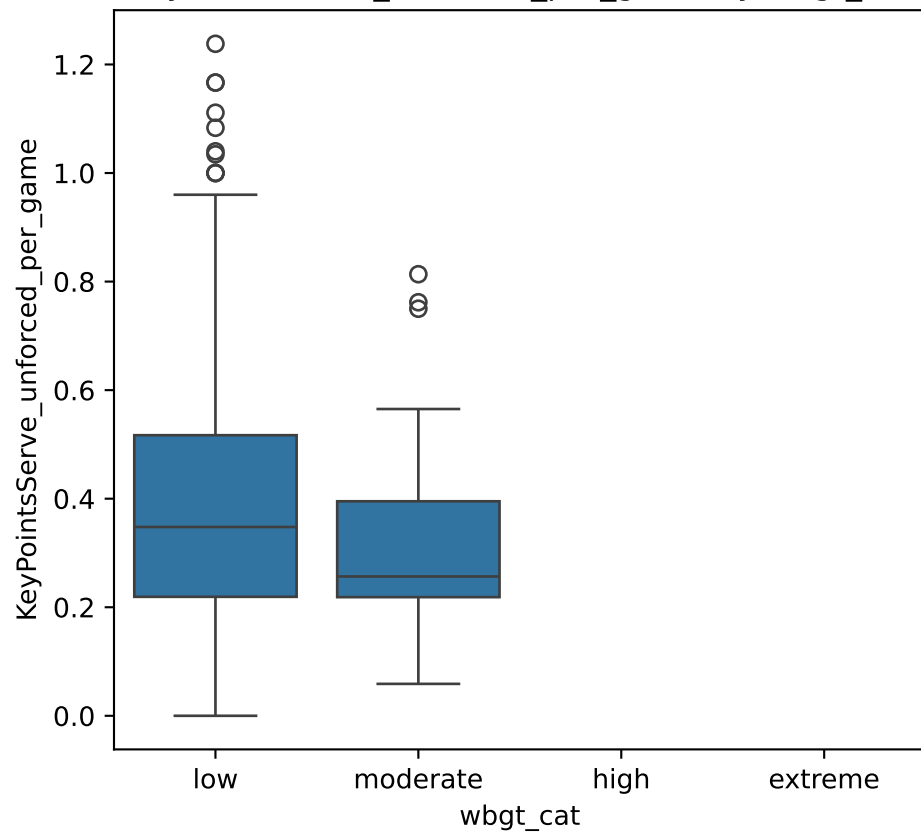


Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_rally\_forced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.462 | 0.264 | 1.0      |
| high     | 0.462   | 1.0   | 1.0   | 1.0      |
| low      | 0.264   | 1.0   | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |

Kruskal, p=0.00687, Jonckheere p=NA, Corr p=0.011423460066096052

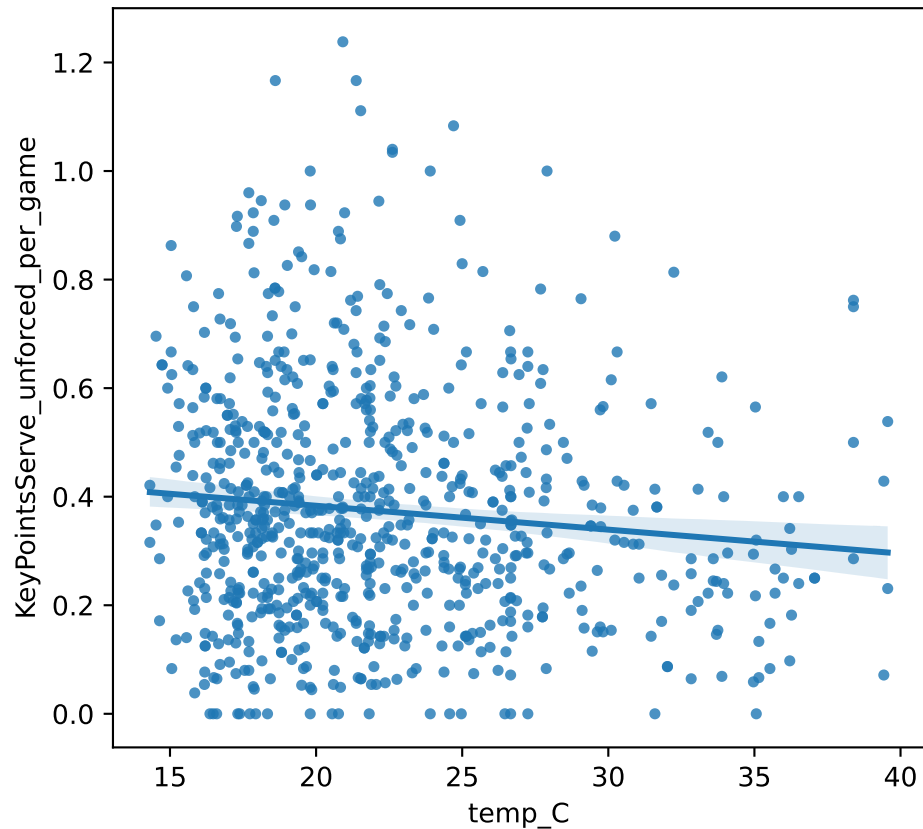
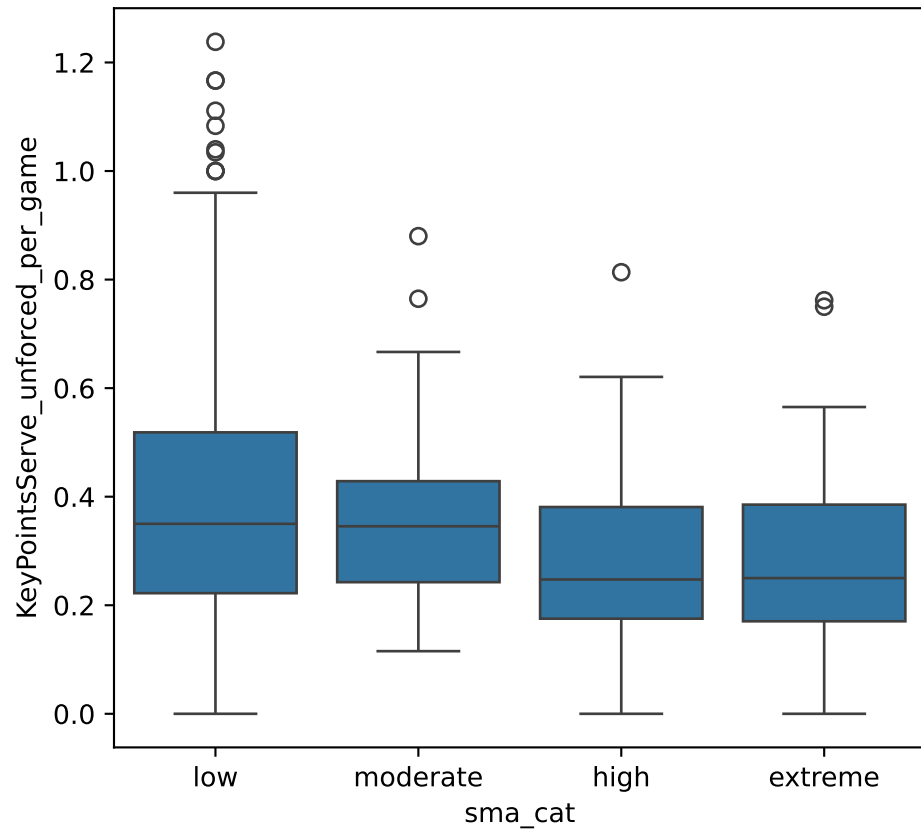
KeyPointsServe\_unforced\_per\_game vs wbg1 (Spearman  $r=-0.09$ ,  $p=0.011$ )



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_unforced\_per\_game by wbg\_t\_cat

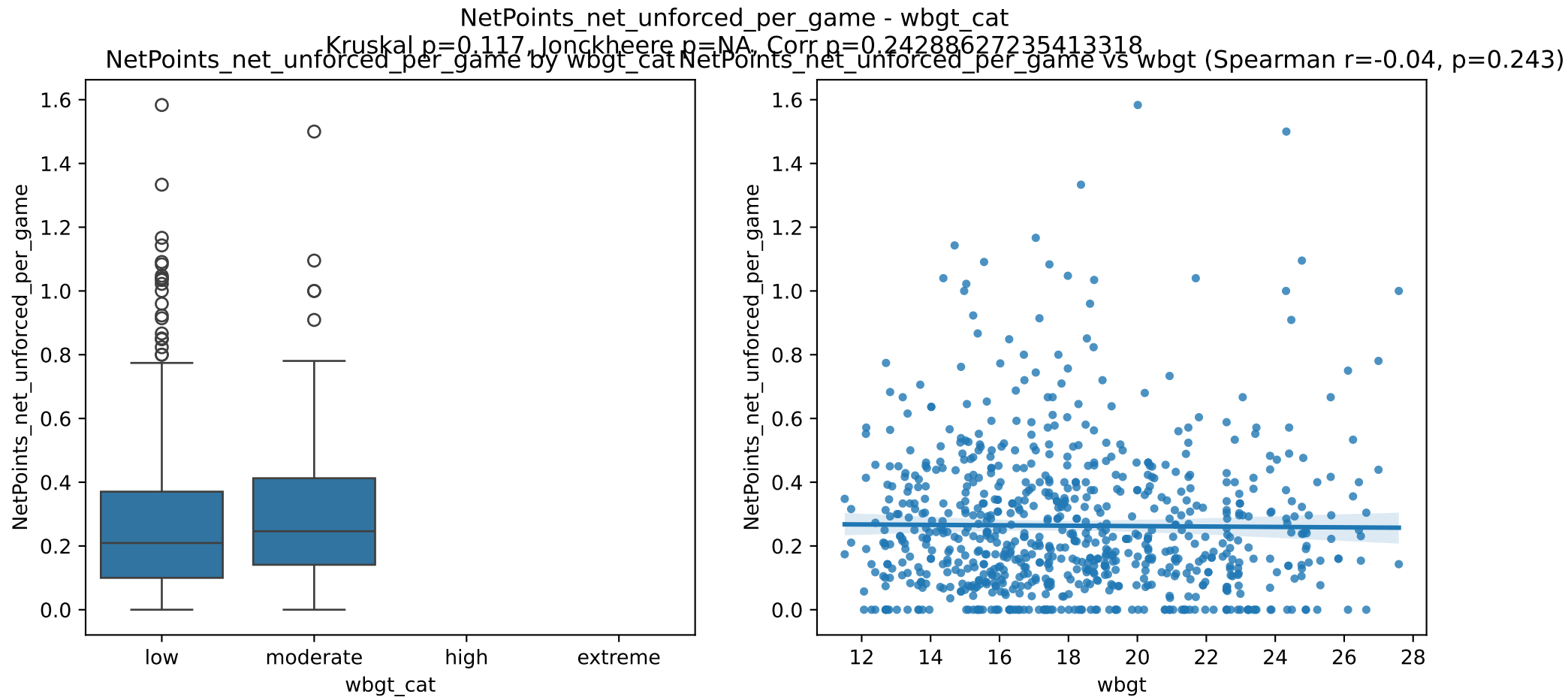
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.007    |
| moderate | 0.007 | 1.0      |

KeyPointsServe\_unforced\_per\_game - sma\_cat  
Kruskal p=0.006, Jonckheere p=NA, Corr p=0.009420893217179505  
KeyPointsServe\_unforced\_per\_game by sma\_cat  
KeyPointsServe\_unforced\_per\_game vs temp\_C (Spearman r=-0.09, p=0.009)



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_unforced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.094 | 0.555    |
| high     | 1.0     | 1.0   | 0.045 | 0.415    |
| low      | 0.094   | 0.045 | 1.0   | 1.0      |
| moderate | 0.555   | 0.415 | 1.0   | 1.0      |

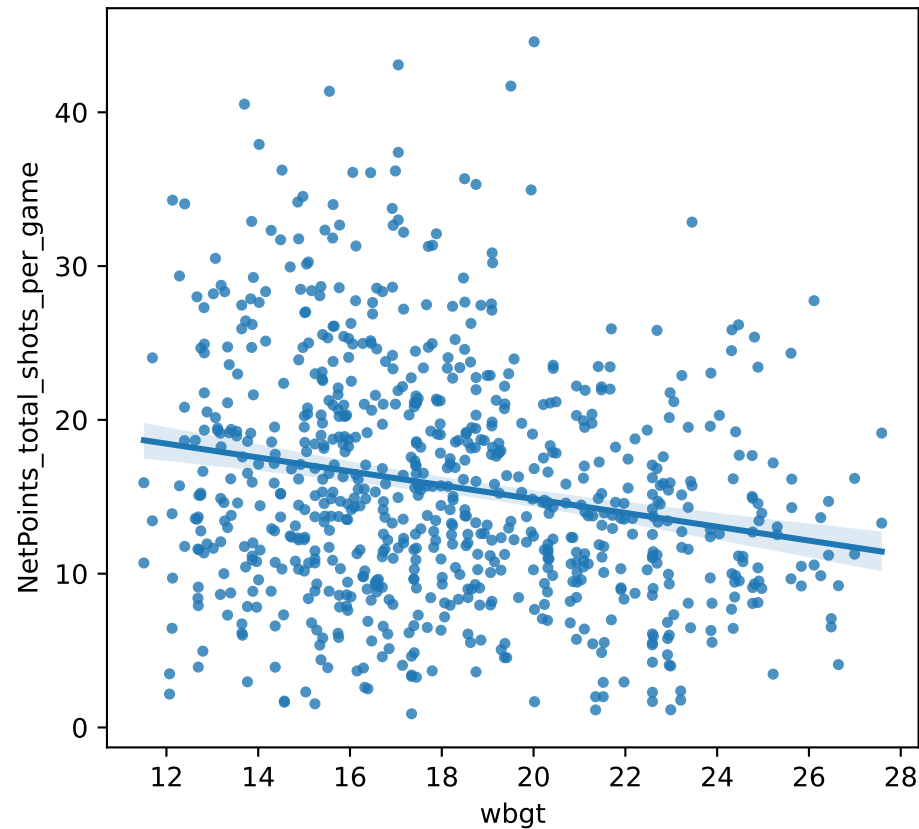
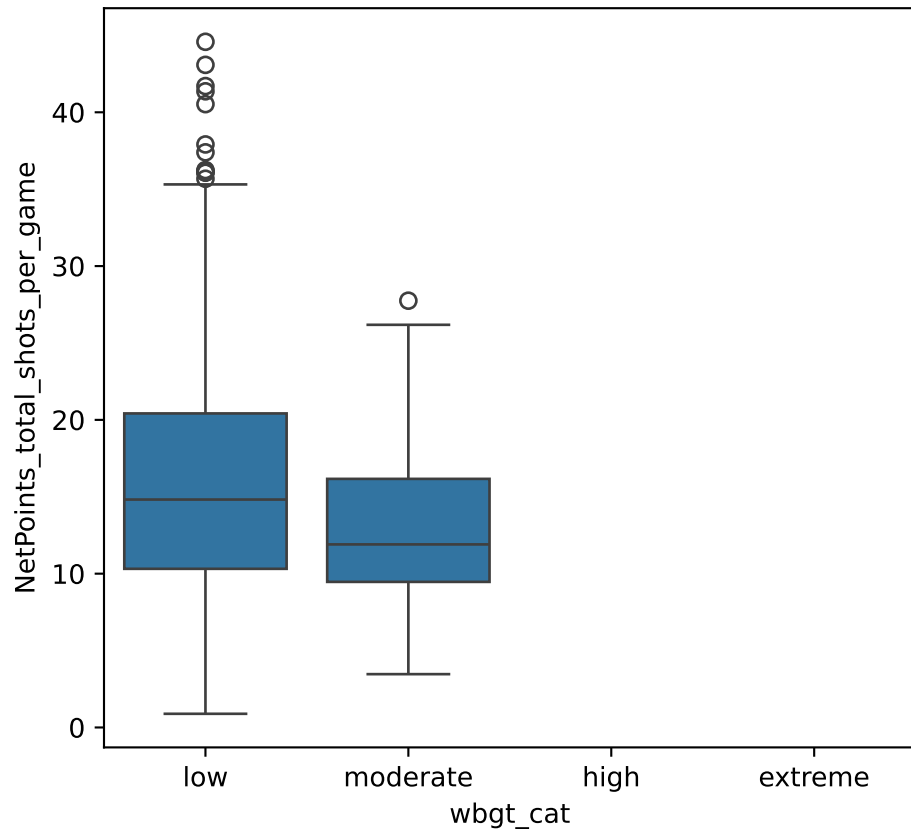


Dunn Post-hoc (p-değerleri)  
NetPoints\_net\_unforced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.117    |
| moderate | 0.117 | 1.0      |



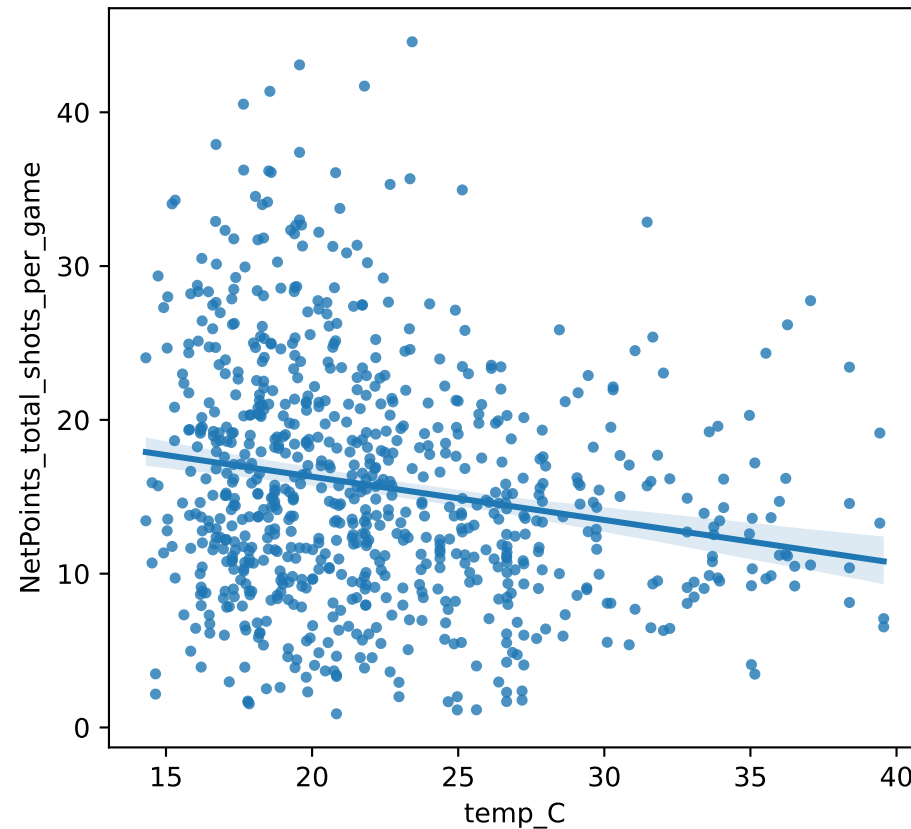
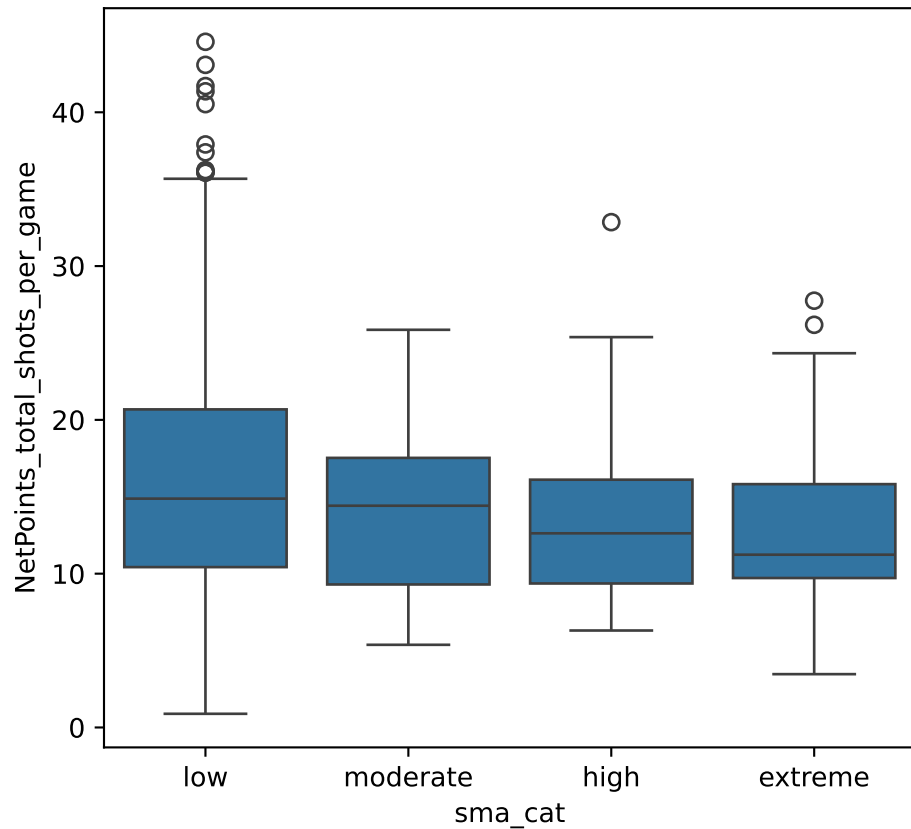
NetPoints\_total\_shots\_per\_game - wbgt\_cat  
Kruskal p=0.013, Jonckheere p=NA, Corr p=3.870637825618051e-08  
NetPoints\_total\_shots\_per\_game by wbgt\_cat NetPoints\_total\_shots\_per\_game vs wbgt (Spearman r=-0.20, p=0.000)



Dunn Post-hoc (p-değerleri)  
NetPoints\_total\_shots\_per\_game by wbgc\_cat

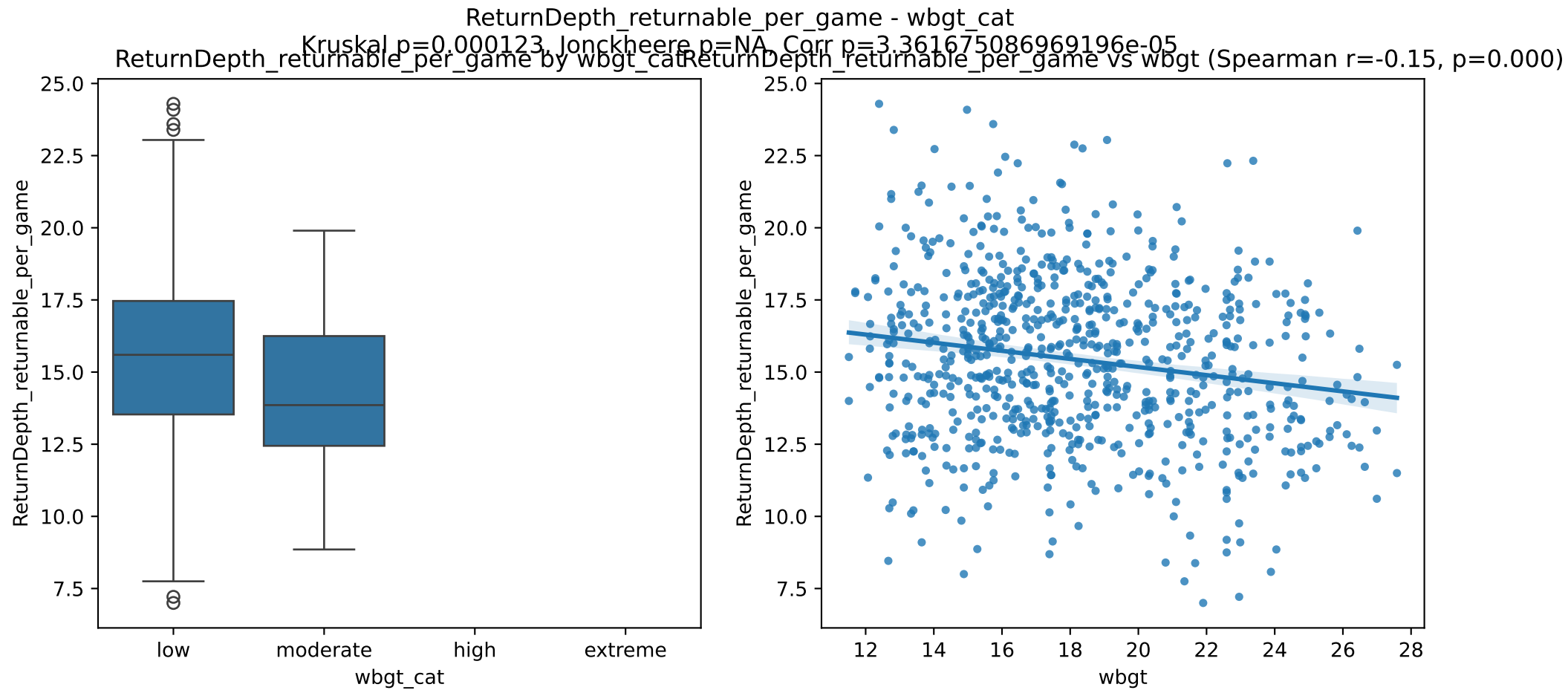
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.013    |
| moderate | 0.013 | 1.0      |

NetPoints\_total\_shots\_per\_game - sma\_cat  
Kruskal p=0.0459, Jonckheere p=NA, Corr p=1.1038229022885194e-07  
NetPoints\_total\_shots\_per\_game by sma\_cat NetPoints\_total\_shots\_per\_game vs temp\_C (Spearman r=-0.19, p=0.000)



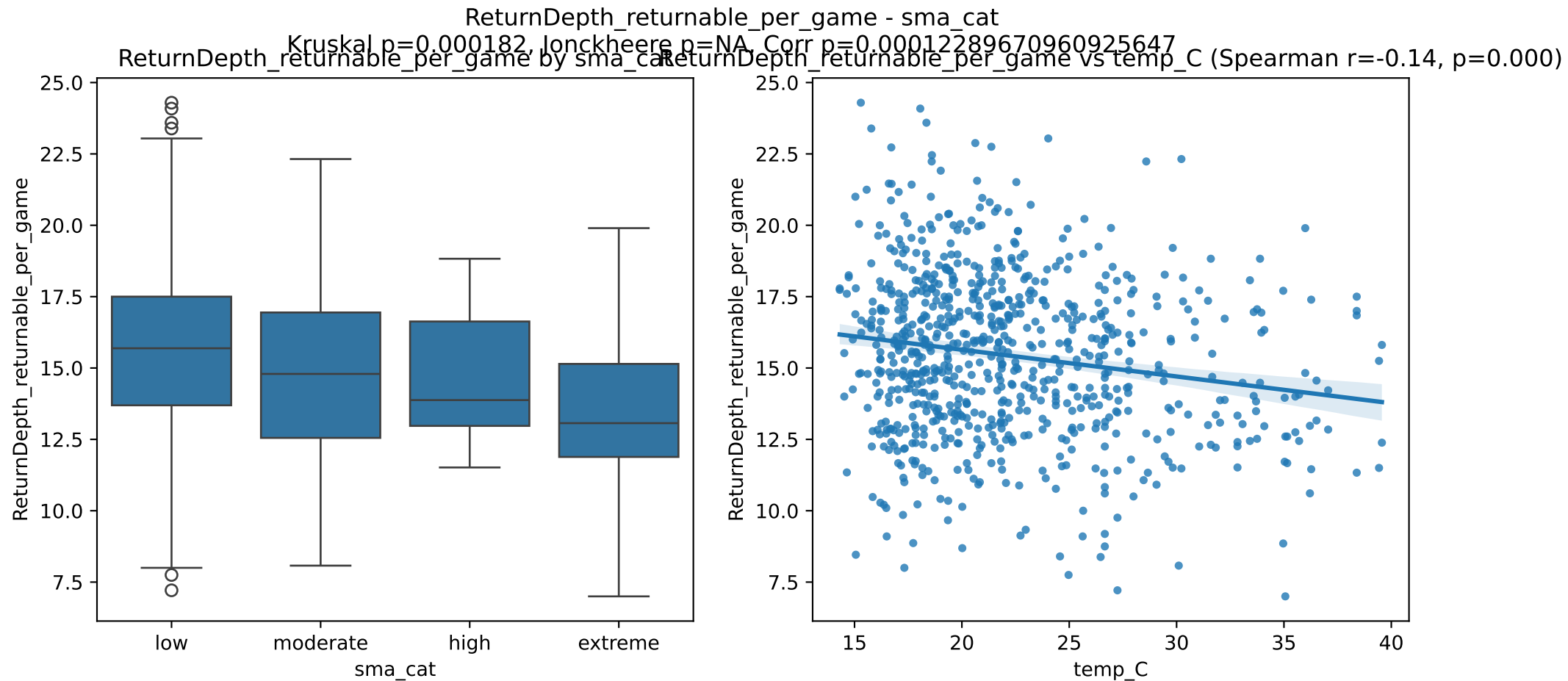
Dunn Post-hoc (p-değerleri)  
NetPoints\_total\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.315 | 1.0      |
| high     | 1.0     | 1.0   | 0.327 | 1.0      |
| low      | 0.315   | 0.327 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_returnable\_per\_game by wbgc\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

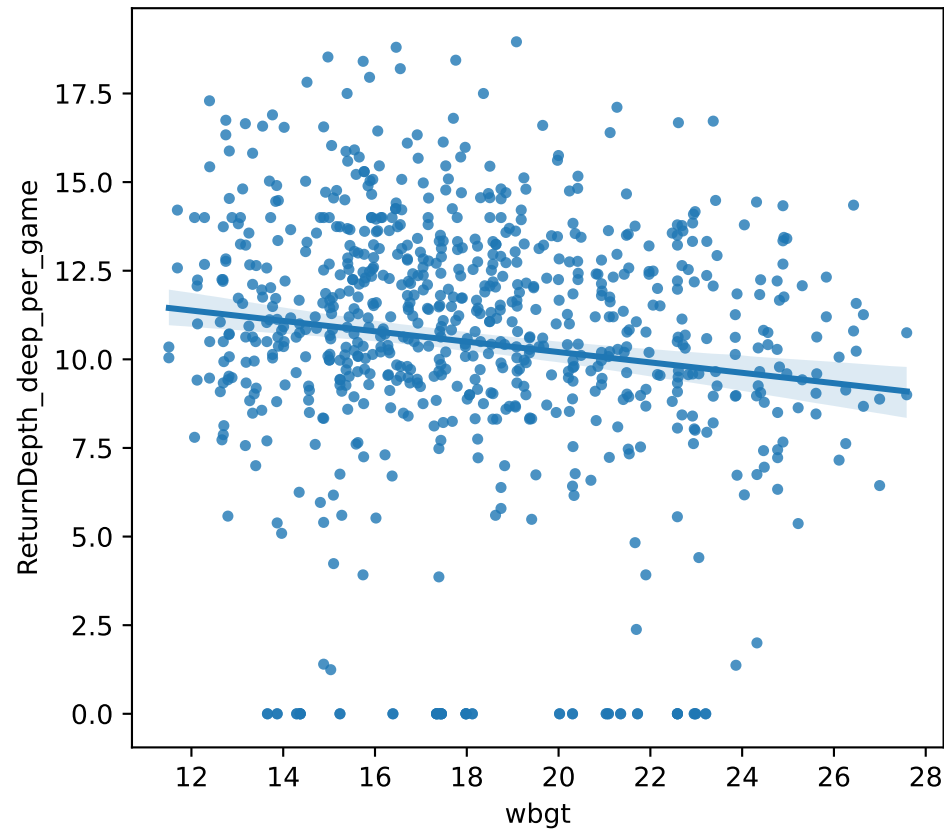
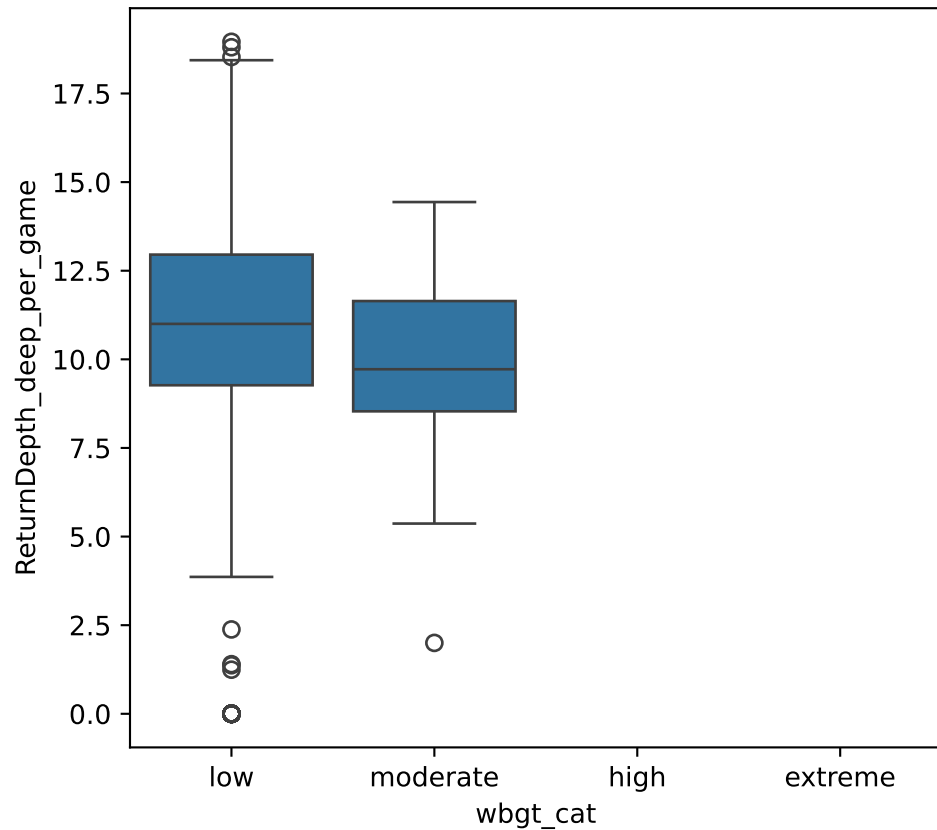


Dunn Post-hoc (p-değerleri)  
ReturnDepth\_returnable\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.002 | 0.718    |
| high     | 1.0     | 1.0   | 0.131 | 1.0      |
| low      | 0.002   | 0.131 | 1.0   | 0.583    |
| moderate | 0.718   | 1.0   | 0.583 | 1.0      |



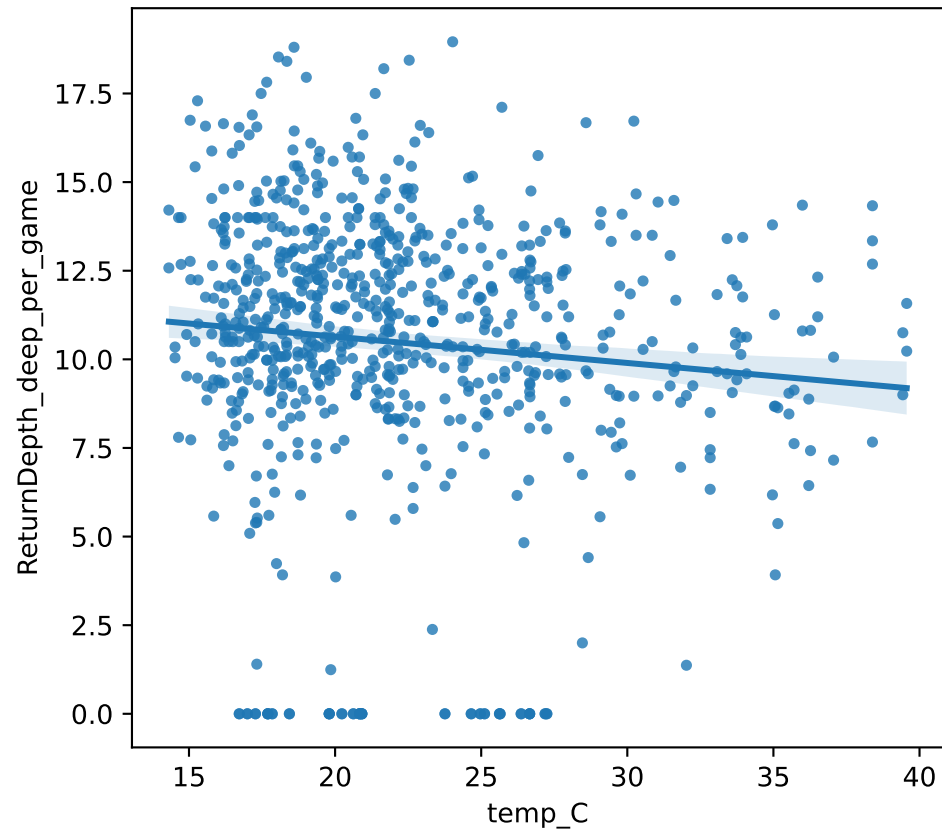
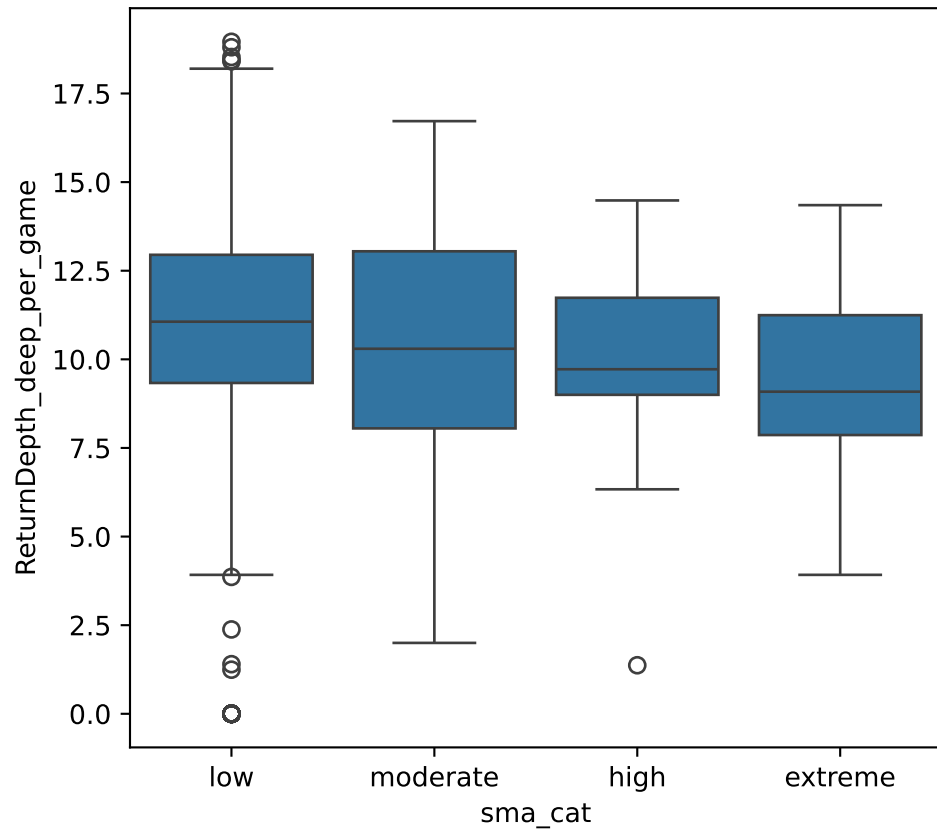
ReturnDepth\_deep\_per\_game - wbgt\_cat  
Kruskal p=0.0044, Jonckheere p=NA, Corr p=3.160294914078104e-05  
ReturnDepth\_deep\_per\_game by wbgt\_cat      ReturnDepth\_deep\_per\_game vs wbgt (Spearman r=-0.15, p=0.000)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_deep\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.004    |
| moderate | 0.004 | 1.0      |

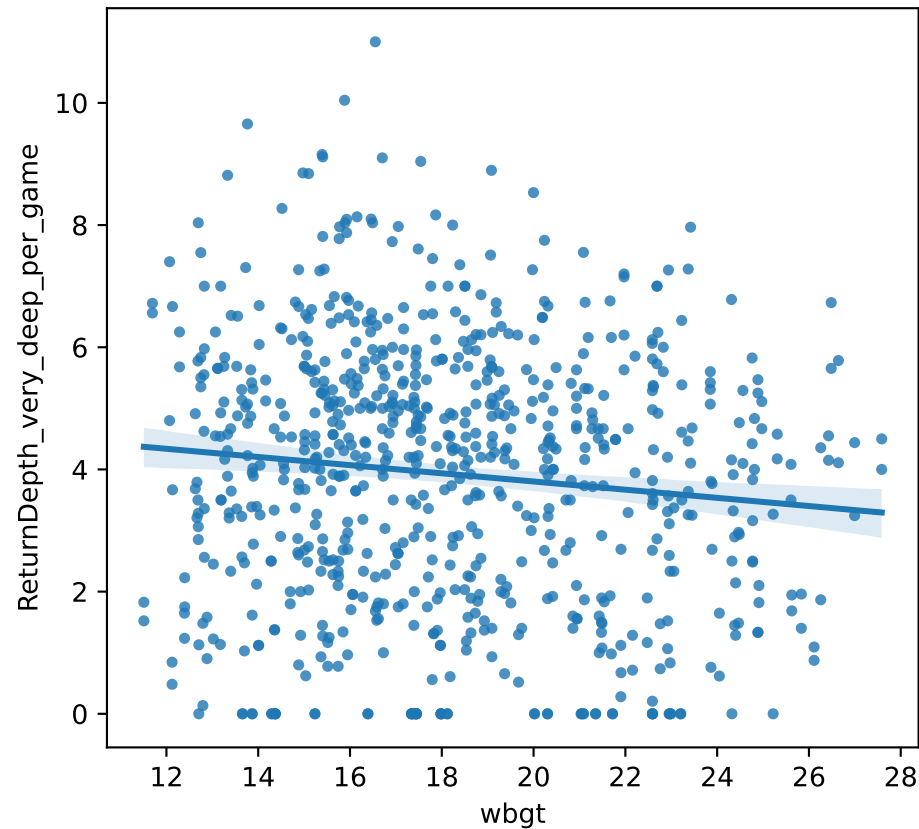
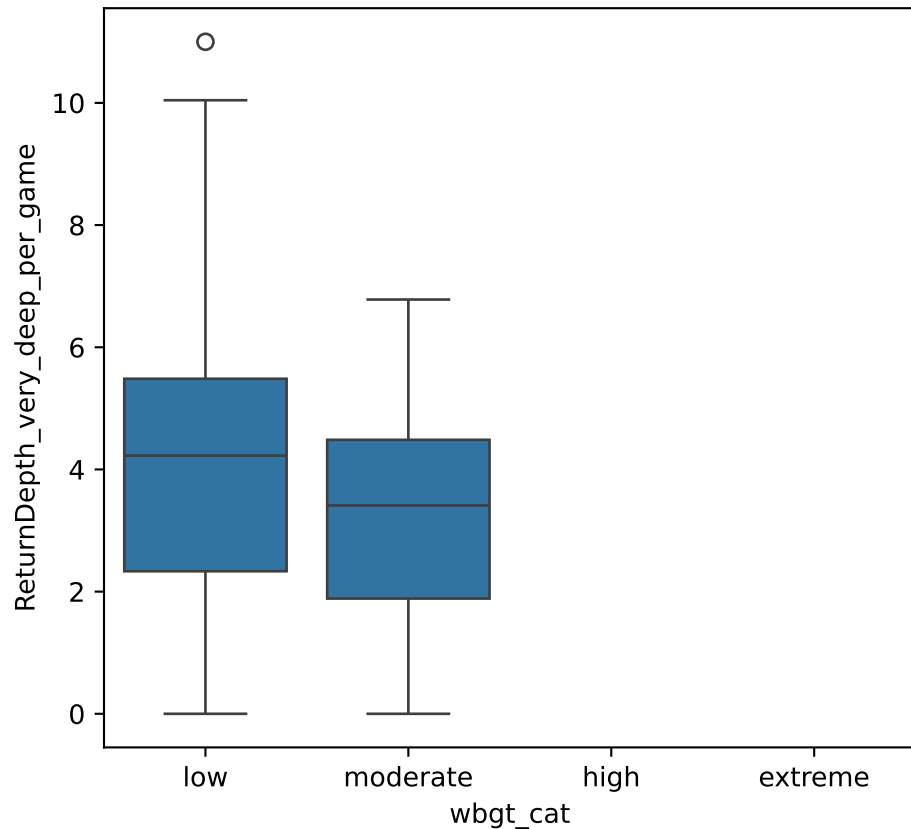
ReturnDepth\_deep\_per\_game - sma\_cat  
Kruskal p=0.0146, Jonckheere p=NA, Corr p=0.00040364938074493445  
ReturnDepth\_deep\_per\_game by sma\_cat    ReturnDepth\_deep\_per\_game vs temp\_C (Spearman r=-0.13, p=0.000)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_deep\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.082 | 1.0      |
| high     | 1.0     | 1.0   | 0.288 | 1.0      |
| low      | 0.082   | 0.288 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |

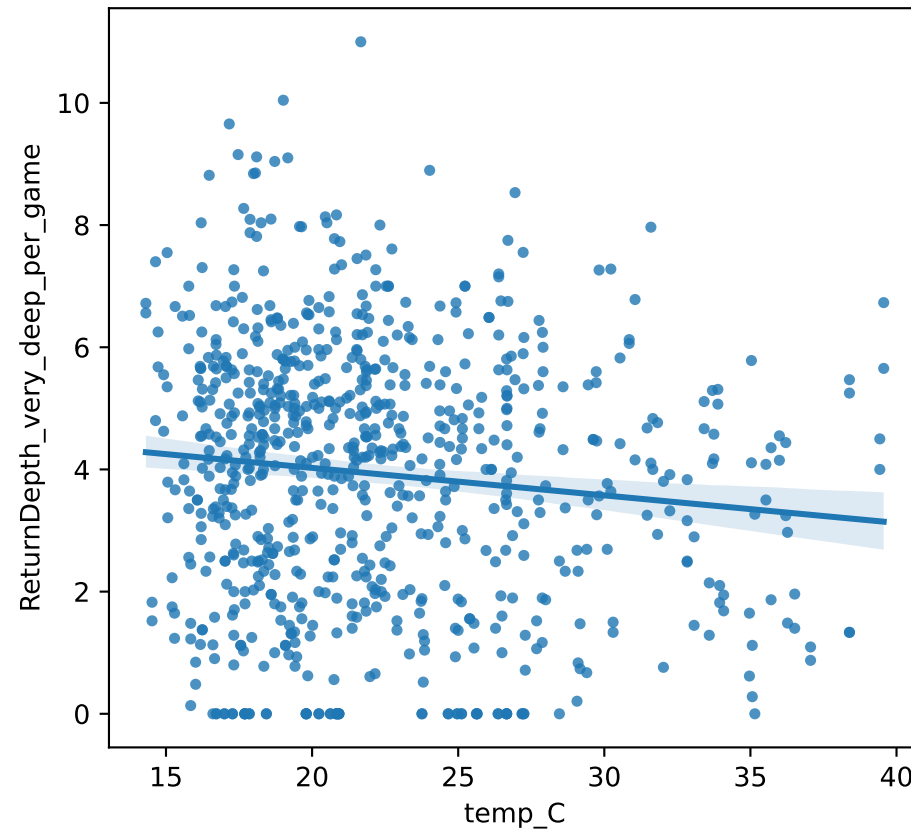
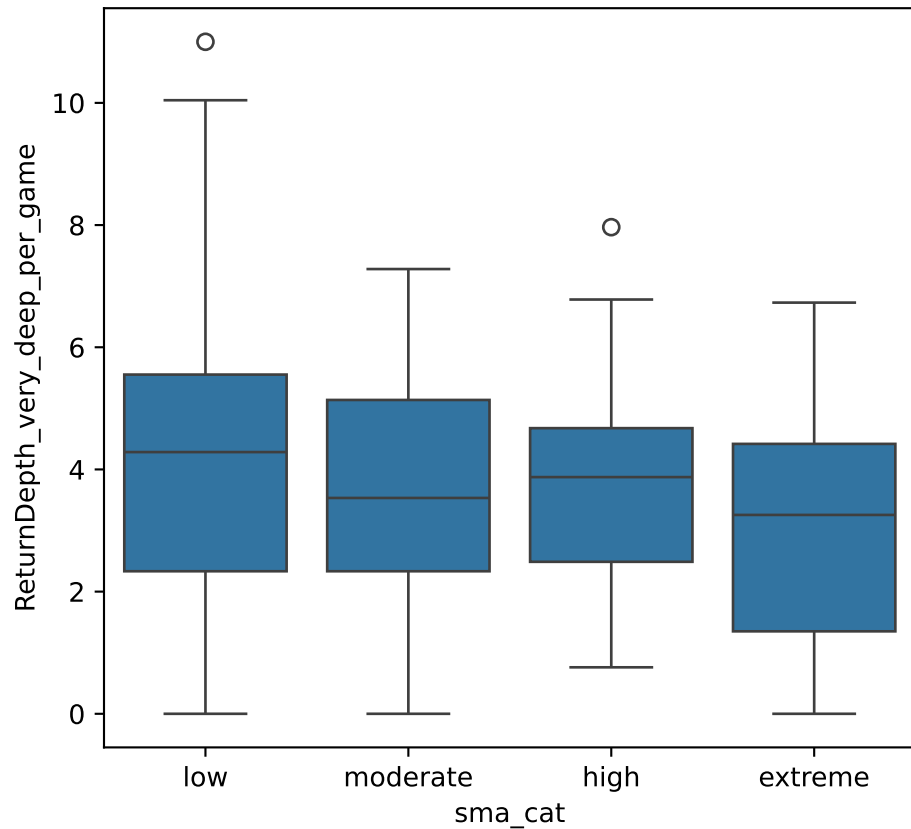
ReturnDepth\_very\_deep\_per\_game - wbgc\_cat  
Kruskal p=0.0128, Jonckheere p=NA, Corr p=0.005129971835116173  
ReturnDepth\_very\_deep\_per\_game by wbgc\_cat  
ReturnDepth\_very\_deep\_per\_game vs wbgc (Spearman r=-0.10, p=0.005)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_very\_deep\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.013    |
| moderate | 0.013 | 1.0      |

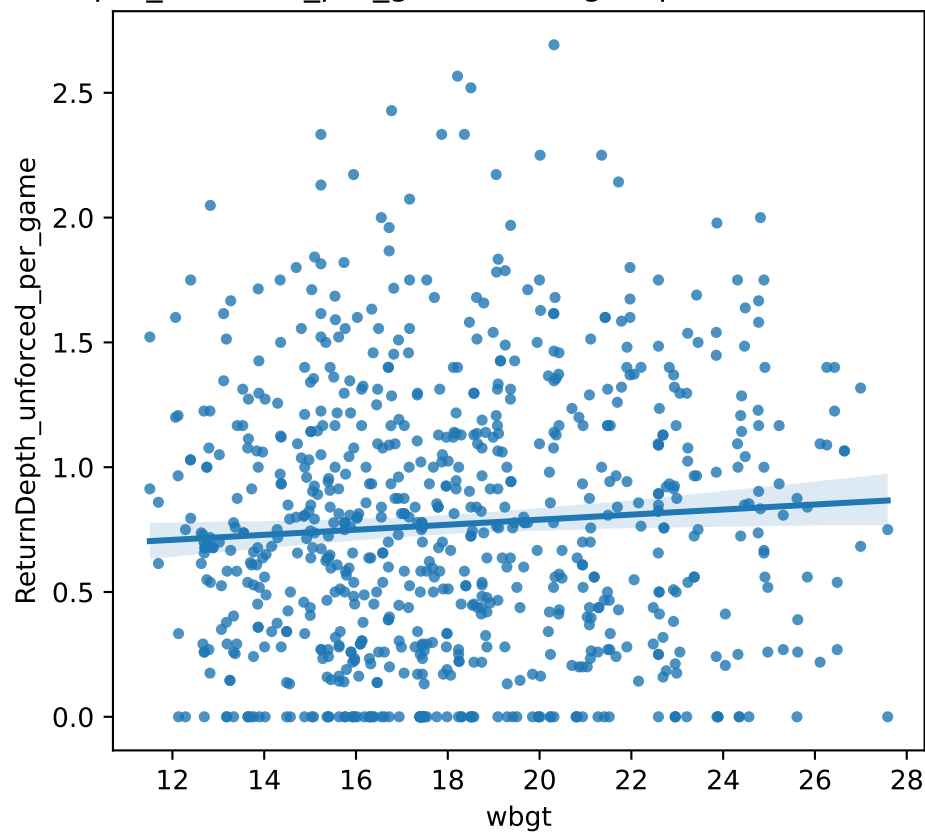
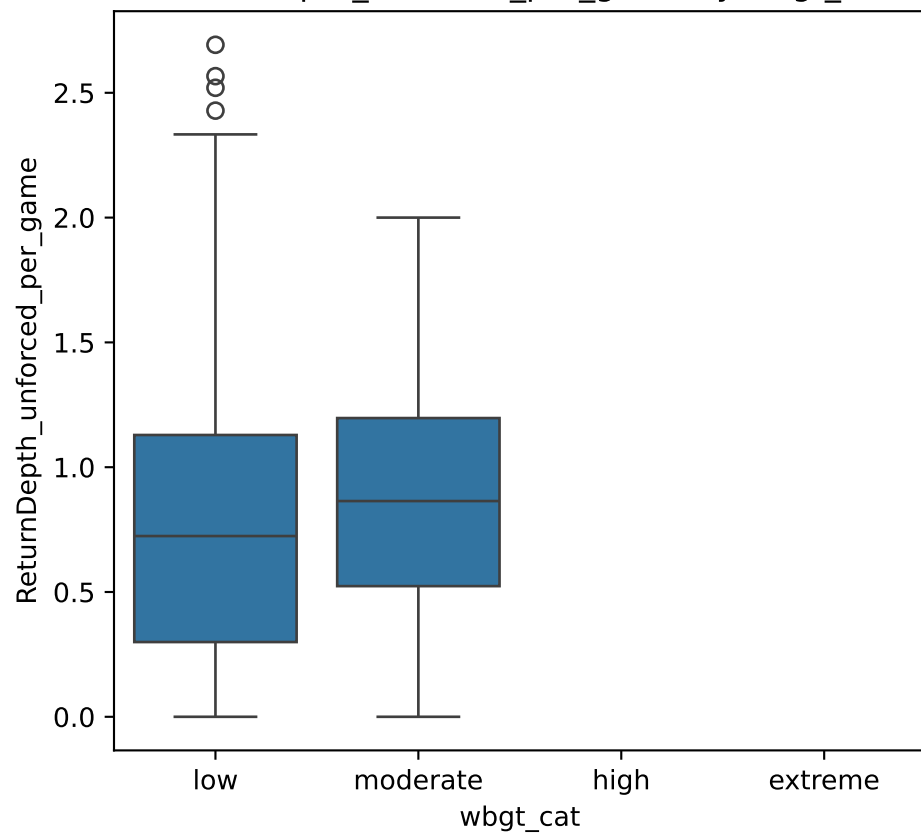
ReturnDepth\_very\_deep\_per\_game - sma\_cat  
Kruskal p=0.0341, Jonckheere p=NA, Corr p=0.008932303414413378  
ReturnDepth\_very\_deep\_per\_game by sma\_cat  
ReturnDepth\_very\_deep\_per\_game vs temp\_C (Spearman r=-0.09, p=0.009)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_very\_deep\_per\_game by sma\_cat

|          | extreme | high | low  | moderate |
|----------|---------|------|------|----------|
| extreme  | 1.0     | 1.0  | 0.08 | 1.0      |
| high     | 1.0     | 1.0  | 1.0  | 1.0      |
| low      | 0.08    | 1.0  | 1.0  | 1.0      |
| moderate | 1.0     | 1.0  | 1.0  | 1.0      |

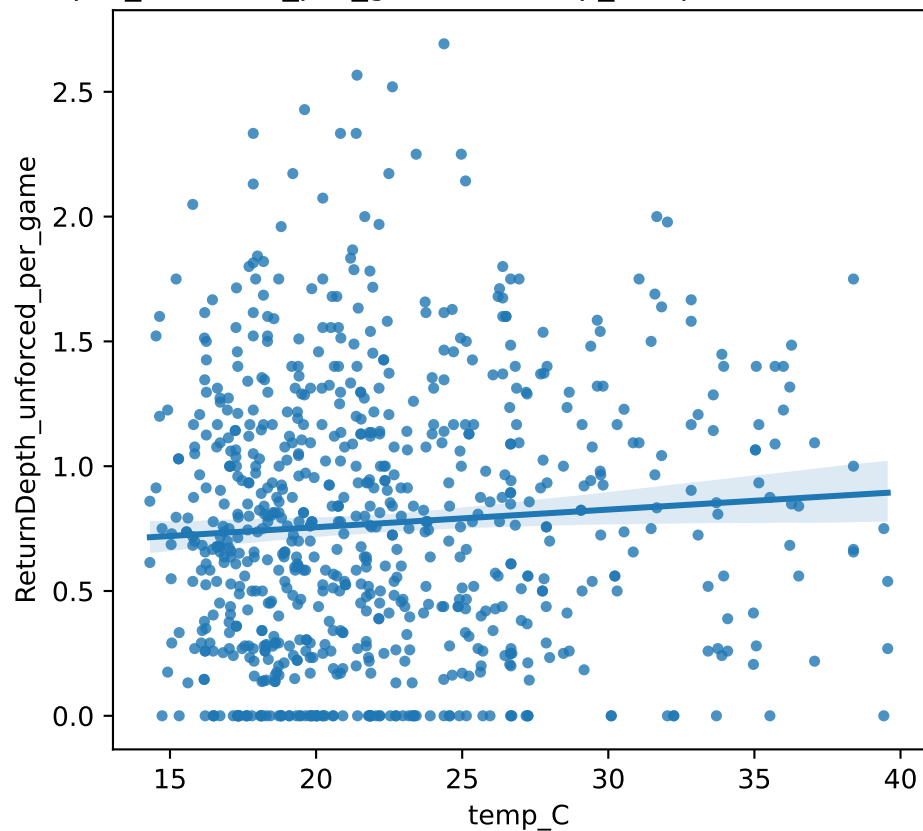
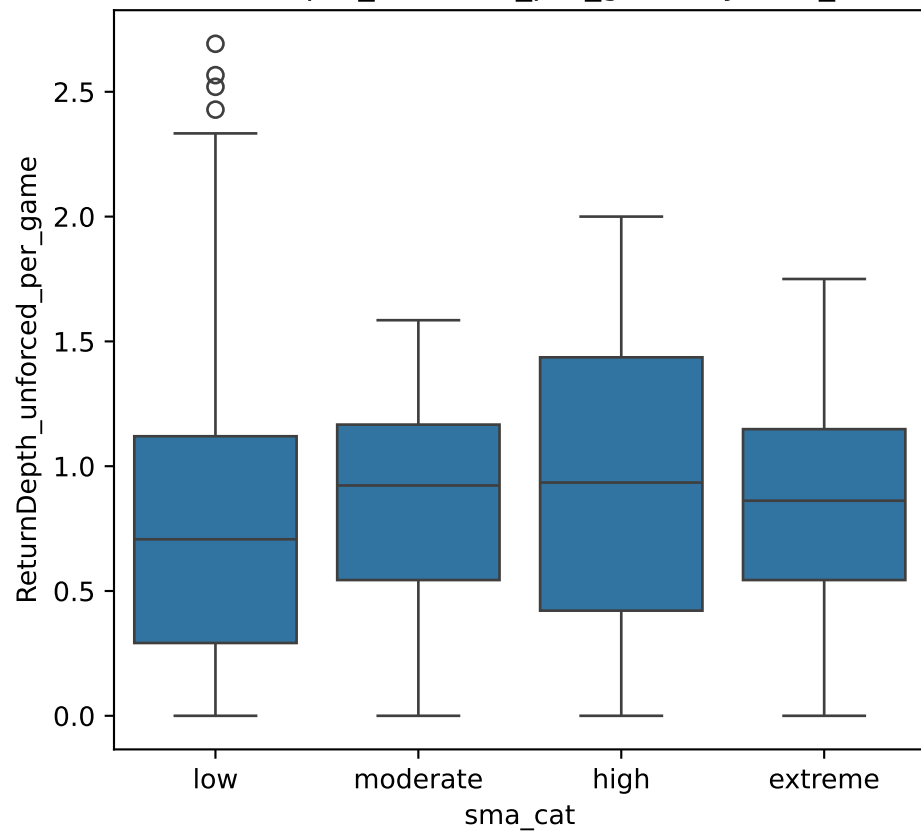




Dunn Post-hoc (p-değerleri)  
ReturnDepth\_unforced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.098    |
| moderate | 0.098 | 1.0      |

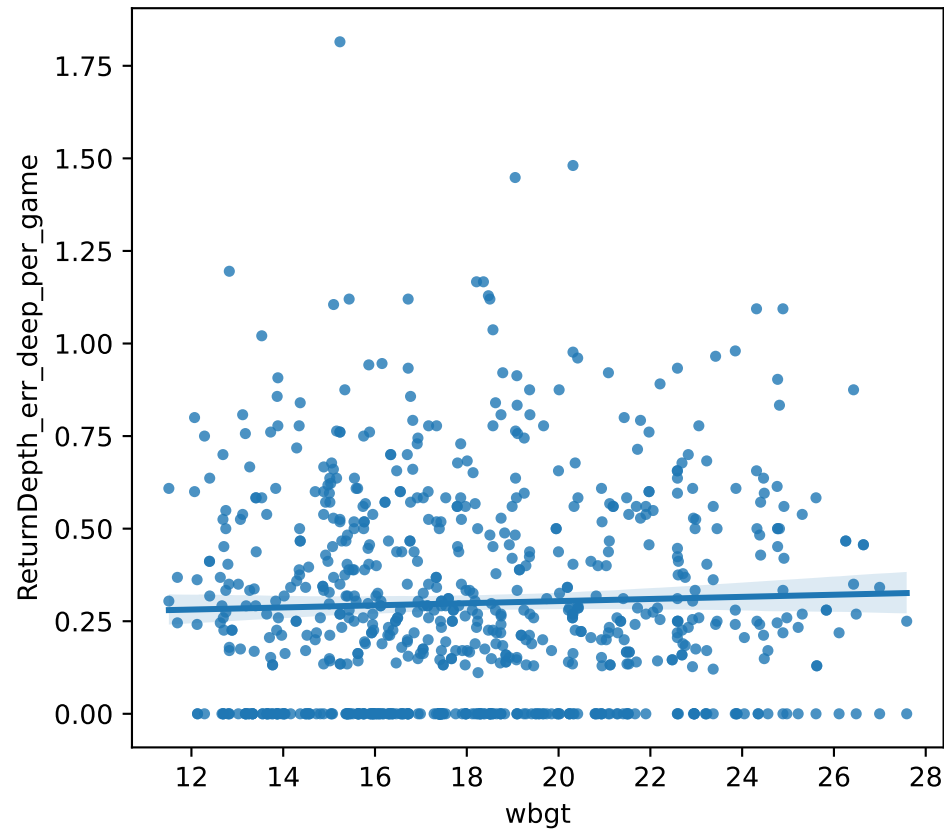
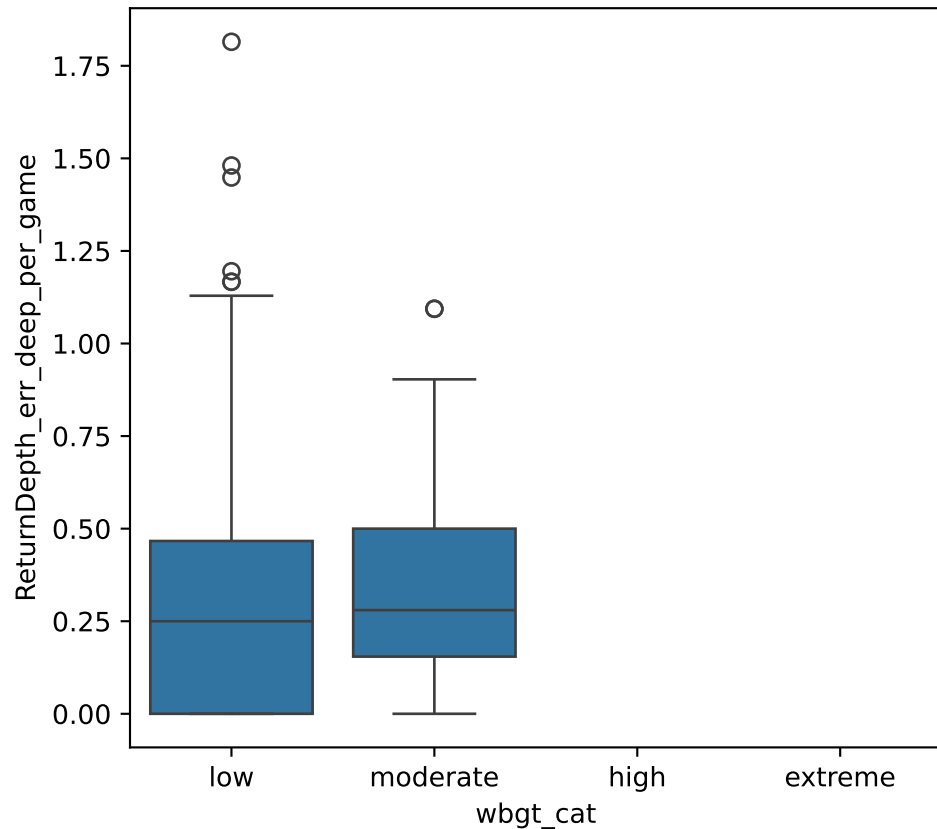
ReturnDepth\_unforced\_per\_game - sma\_cat  
Kruskal p=0.0959, Jonckheere p=NA, Corr p=0.06715403442103303  
ReturnDepth\_unforced\_per\_game by sma\_cat ReturnDepth\_unforced\_per\_game vs temp\_C (Spearman r=0.07, p=0.067)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_unforced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.361 | 1.0      |
| low      | 1.0     | 0.361 | 1.0   | 0.977    |
| moderate | 1.0     | 1.0   | 0.977 | 1.0      |

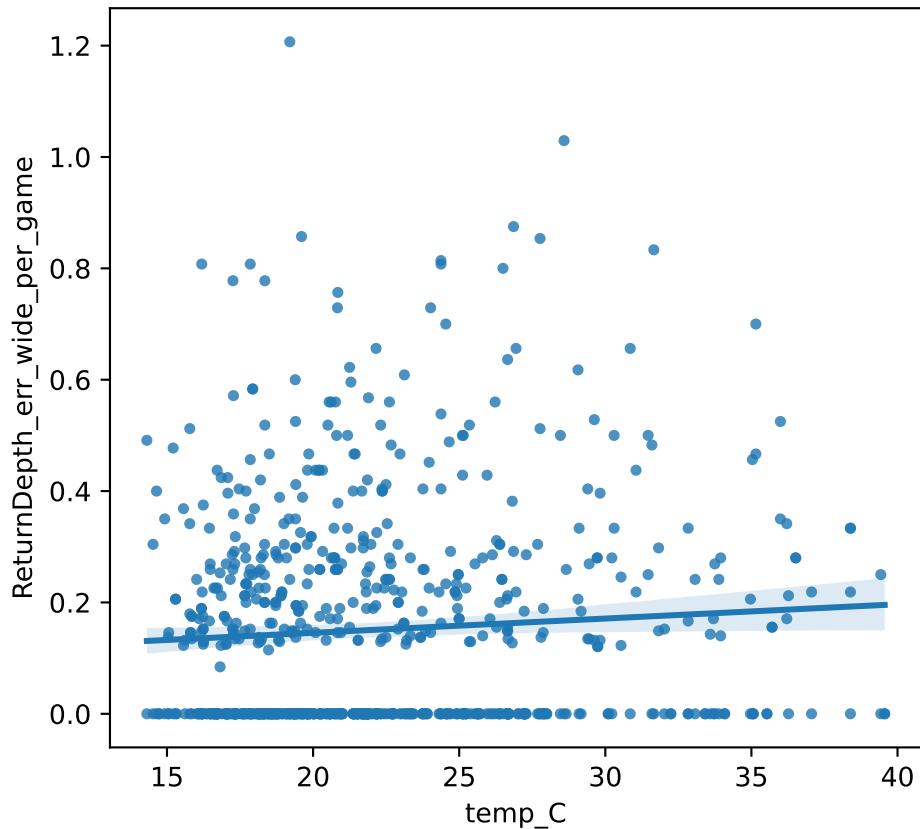
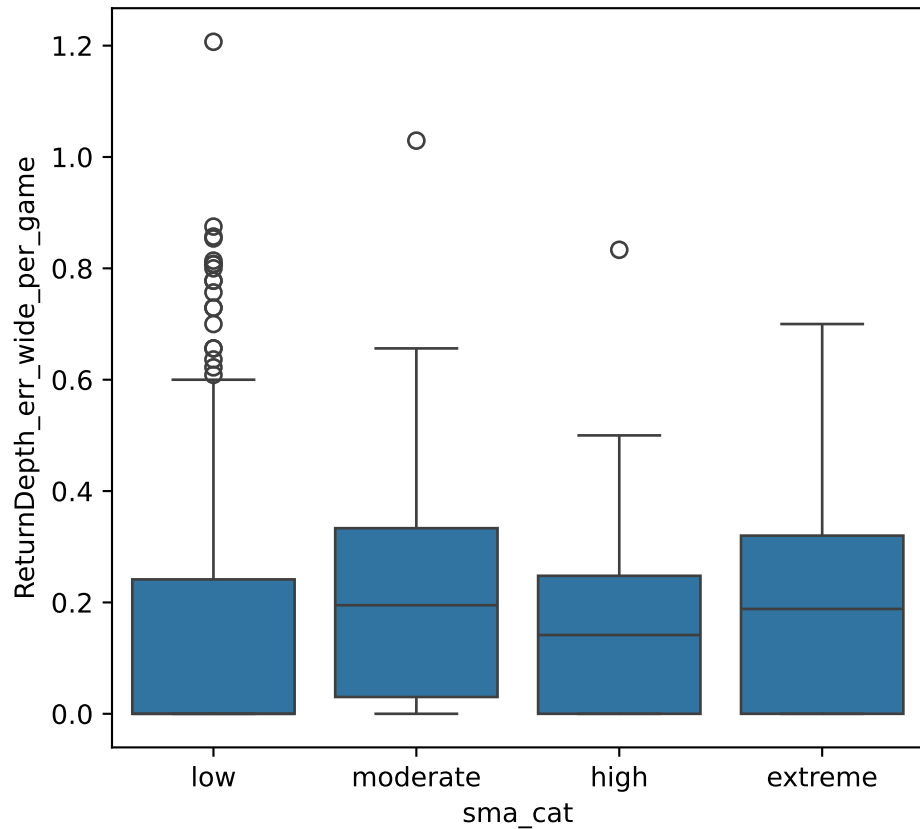
ReturnDepth\_err\_deep\_per\_game - wbgt\_cat  
Kruskal p=0.111, Jonckheere p=NA, Corr p=0.38336378284240524  
ReturnDepth\_err\_deep\_per\_game by wbgt\_cat ReturnDepth\_err\_deep\_per\_game vs wbgt (Spearman r=0.03, p=0.383)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_deep\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.111    |
| moderate | 0.111 | 1.0      |

ReturnDepth\_err\_wide\_per\_game - sma\_cat  
Kruskal p=0.0225, Jonckheere p=NA, Corr p=0.1097088201457297  
ReturnDepth\_err\_wide\_per\_game by sma\_cat ReturnDepth\_err\_wide\_per\_game vs temp\_C (Spearman r=0.06, p=0.110)

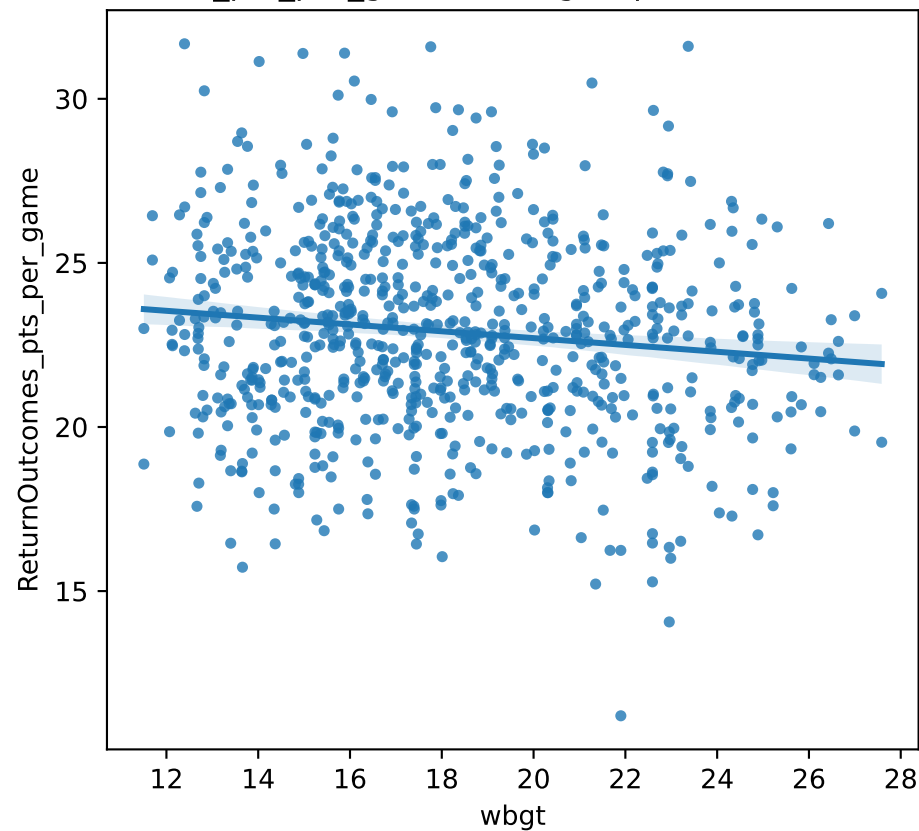
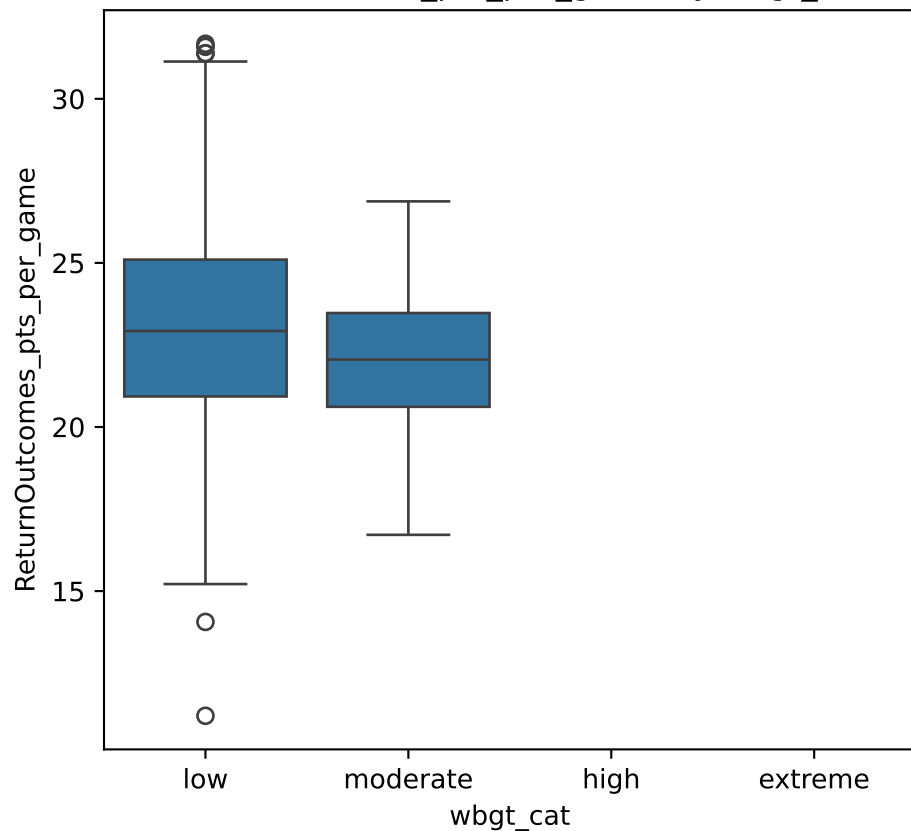


Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_wide\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.721 | 1.0      |
| high     | 1.0     | 1.0   | 1.0   | 0.592    |
| low      | 0.721   | 1.0   | 1.0   | 0.038    |
| moderate | 1.0     | 0.592 | 0.038 | 1.0      |



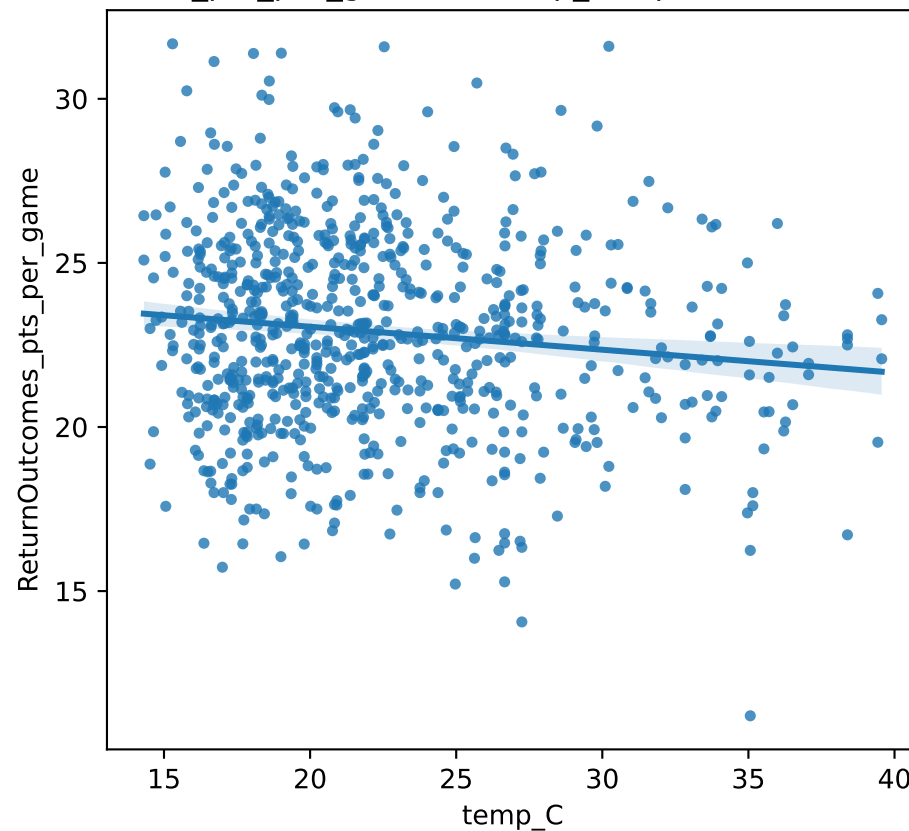
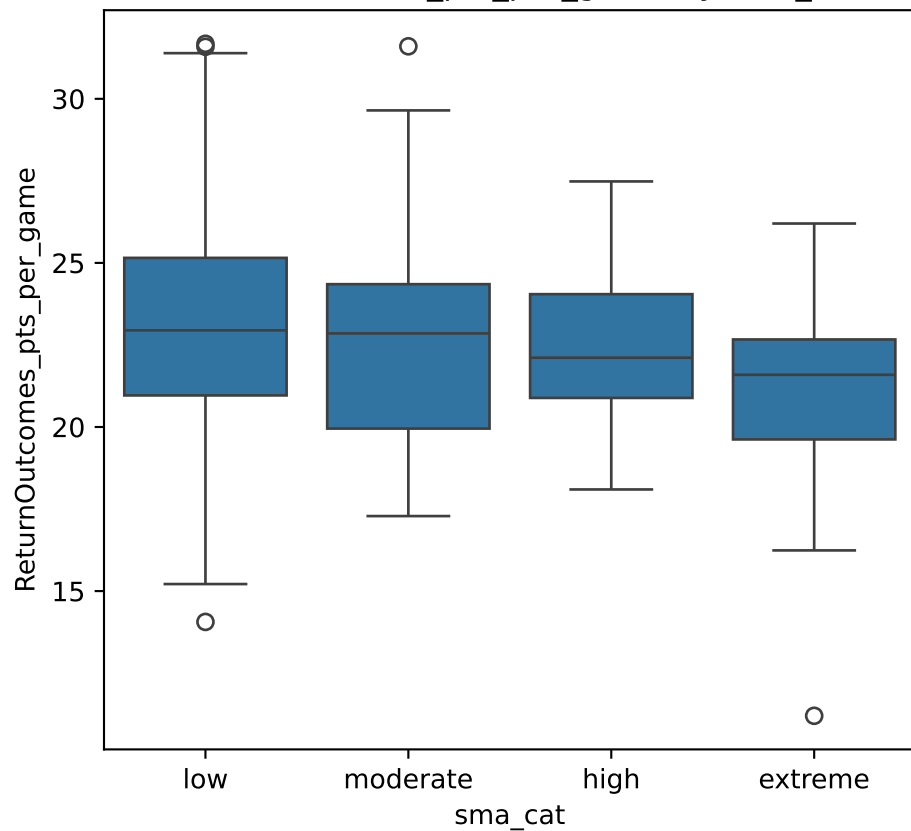
ReturnOutcomes\_pts\_per\_game - wbgt\_cat  
Kruskal p=0.0165, Jonckheere p=NA, Corr p=0.004736400063079453  
ReturnOutcomes\_pts\_per\_game by wbgt\_cat  
ReturnOutcomes\_pts\_per\_game vs wbgt (Spearman r=-0.10, p=0.005)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_pts\_per\_game by wbgmt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.016    |
| moderate | 0.016 | 1.0      |

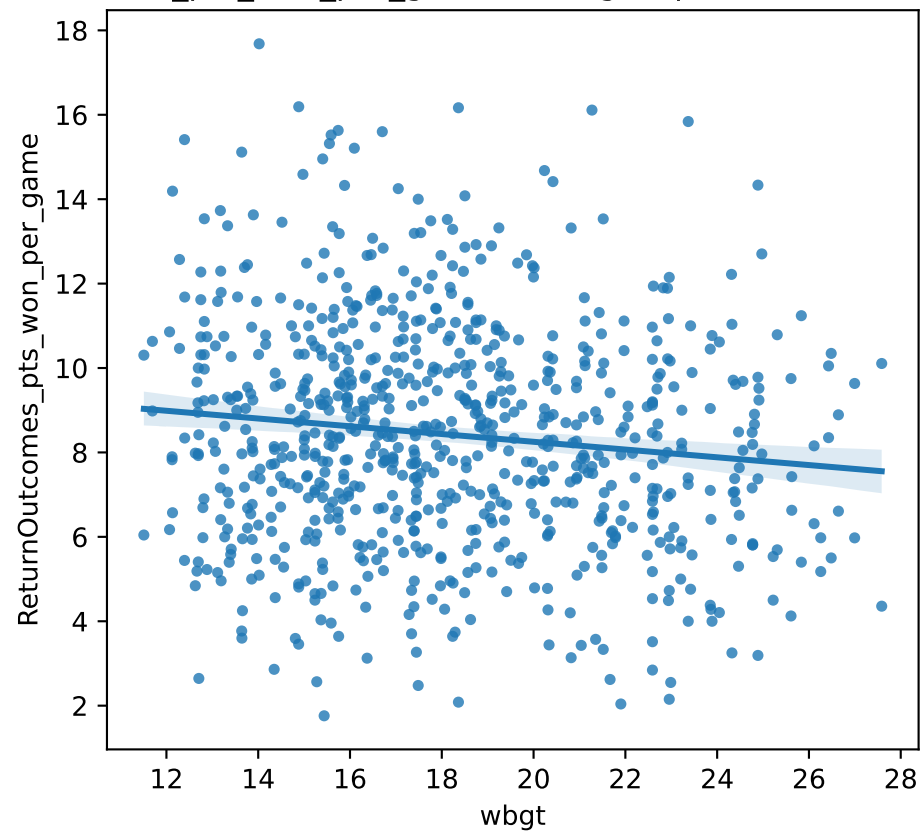
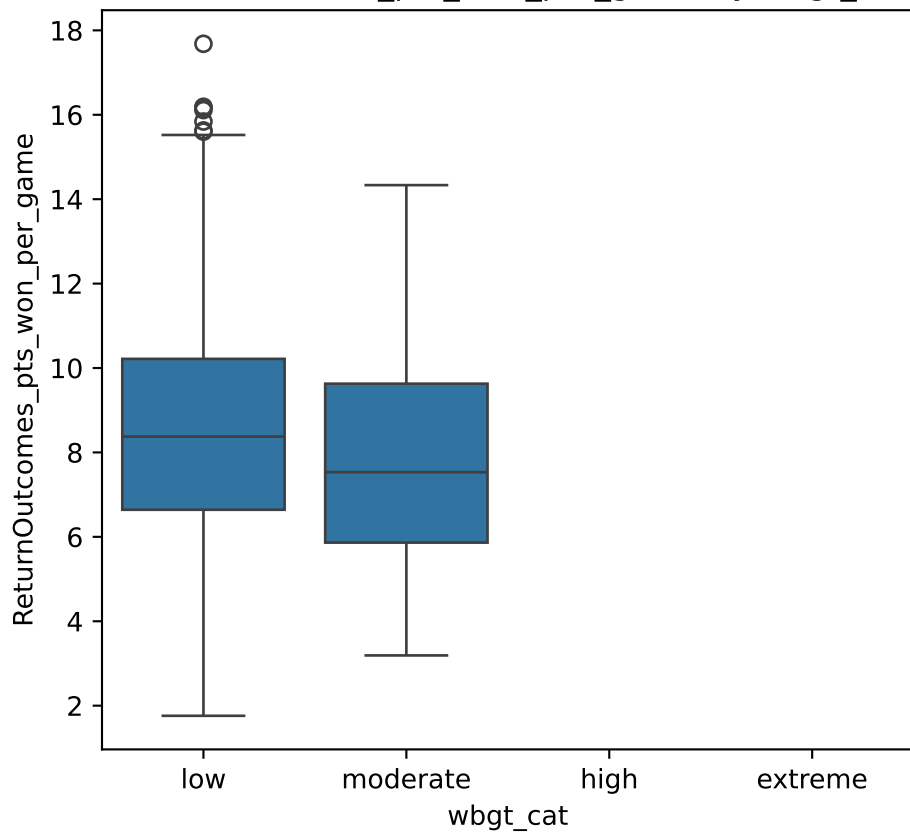
ReturnOutcomes\_pts\_per\_game - sma\_cat  
Kruskal p=0.00758, Jonckheere p=NA, Corr p=0.015908578264883722  
ReturnOutcomes\_pts\_per\_game by sma\_cat ReturnOutcomes\_pts\_per\_game vs temp\_C (Spearman r=-0.09, p=0.016)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.339 | 0.005 | 0.223    |
| high     | 0.339   | 1.0   | 1.0   | 1.0      |
| low      | 0.005   | 1.0   | 1.0   | 1.0      |
| moderate | 0.223   | 1.0   | 1.0   | 1.0      |

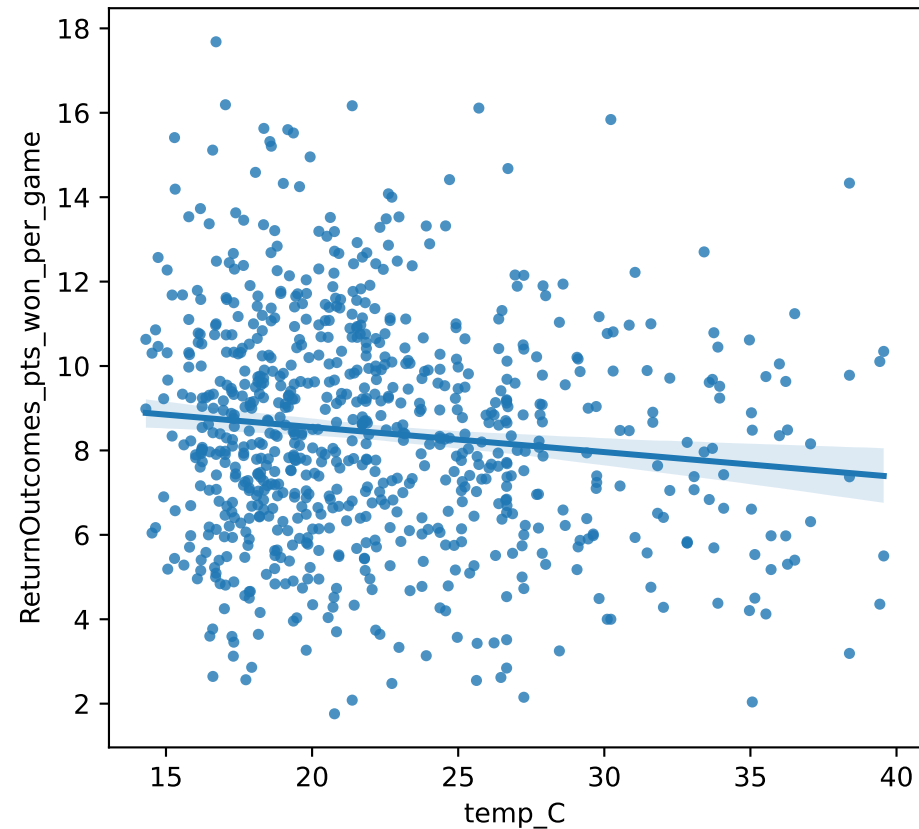
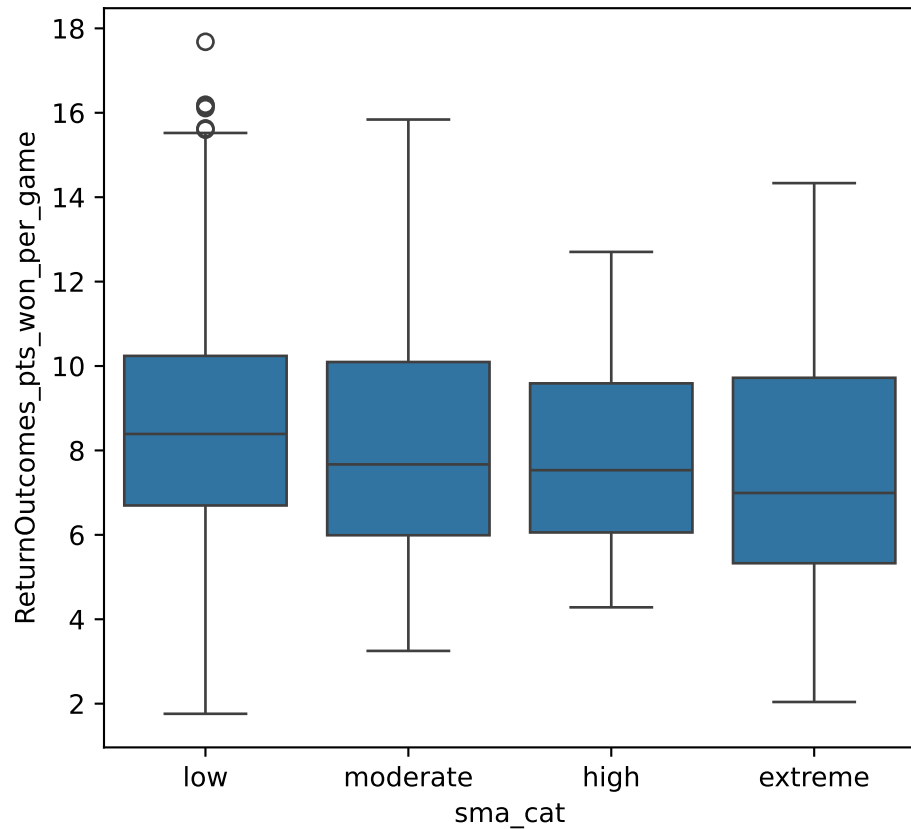
ReturnOutcomes\_pts\_won\_per\_game - wbgt\_cat  
Kruskal p=0.0468, Jonckheere p=NA, Corr p=0.0042256215397814875  
ReturnOutcomes\_pts\_won\_per\_game by wbgt\_cat  
ReturnOutcomes\_pts\_won\_per\_game vs wbgt (Spearman  $r=-0.10$ ,  $p=0.004$ )



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_pts\_won\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.047    |
| moderate | 0.047 | 1.0      |

ReturnOutcomes\_pts\_won\_per\_game - sma\_cat  
Kruskal p=0.054, Jonckheere p=NA, Corr p=0.01253360644774208  
ReturnOutcomes\_pts\_won\_per\_game by sma\_cat  
ReturnOutcomes\_pts\_won\_per\_game vs temp\_C (Spearman r=-0.09, p=0.013)

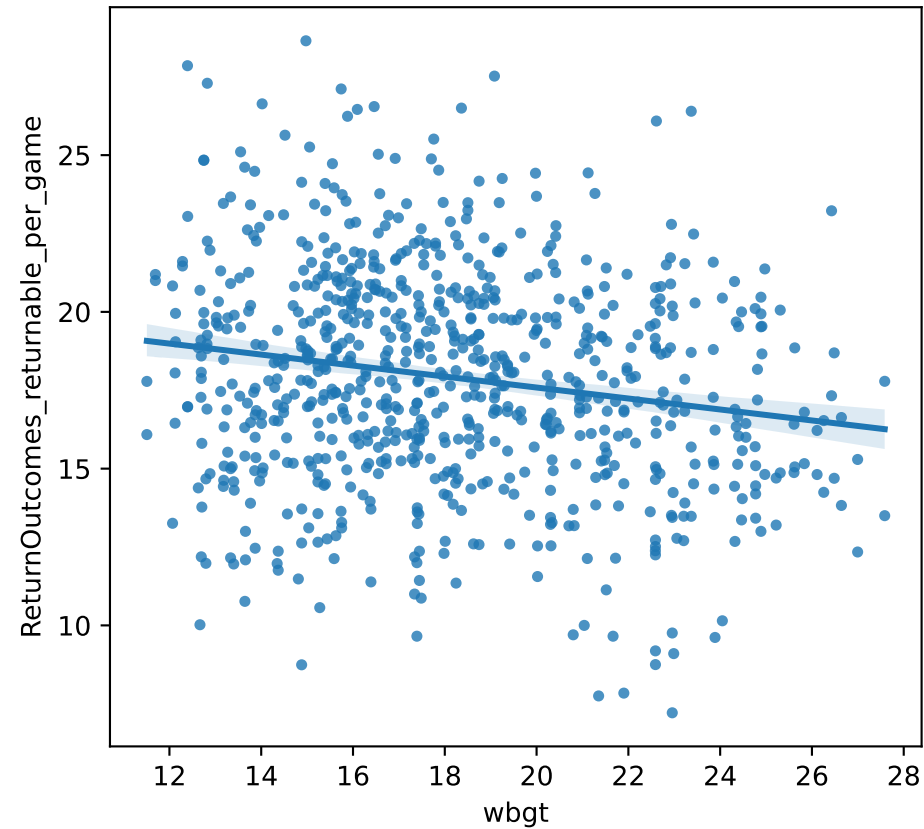
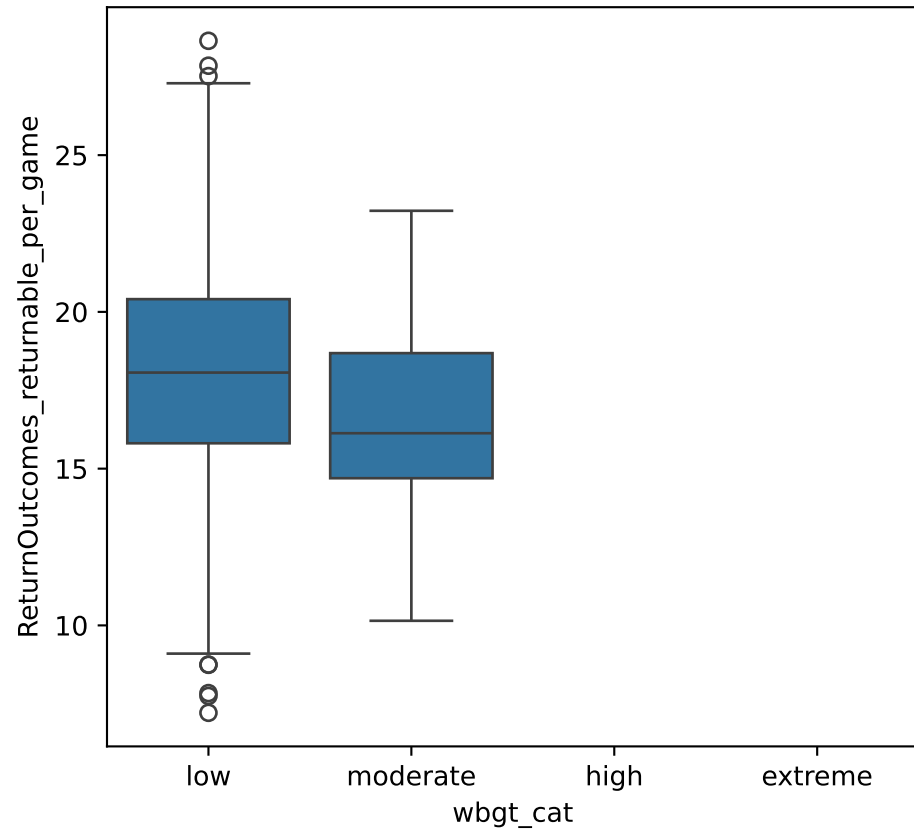


Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_pts\_won\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.144 | 1.0      |
| high     | 1.0     | 1.0   | 0.899 | 1.0      |
| low      | 0.144   | 0.899 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |



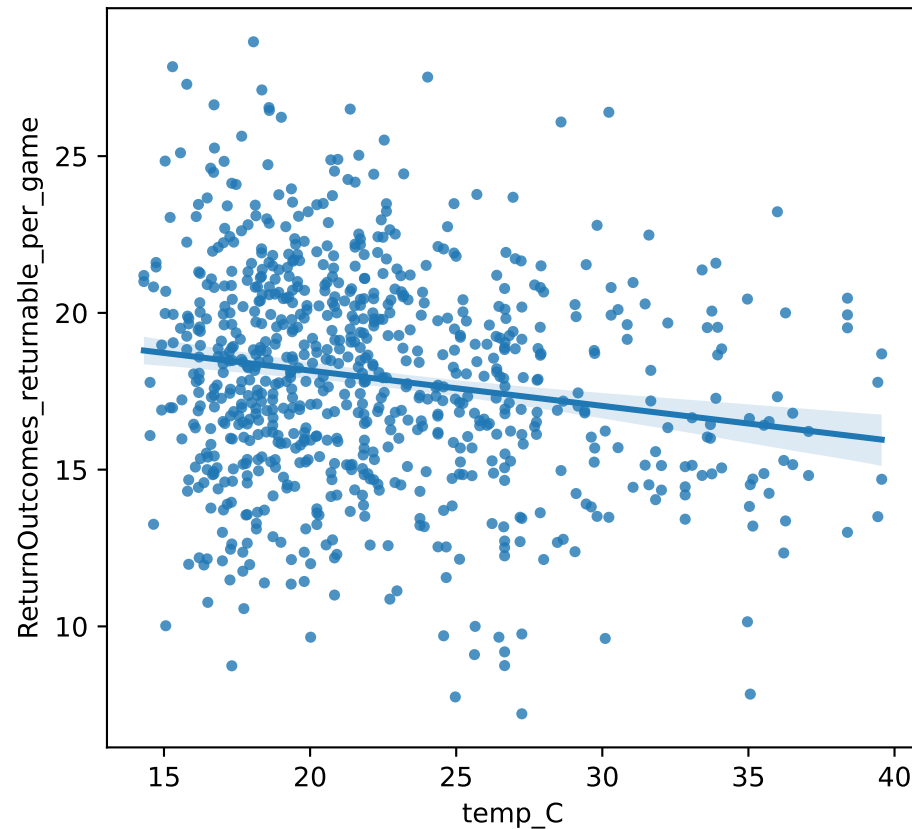
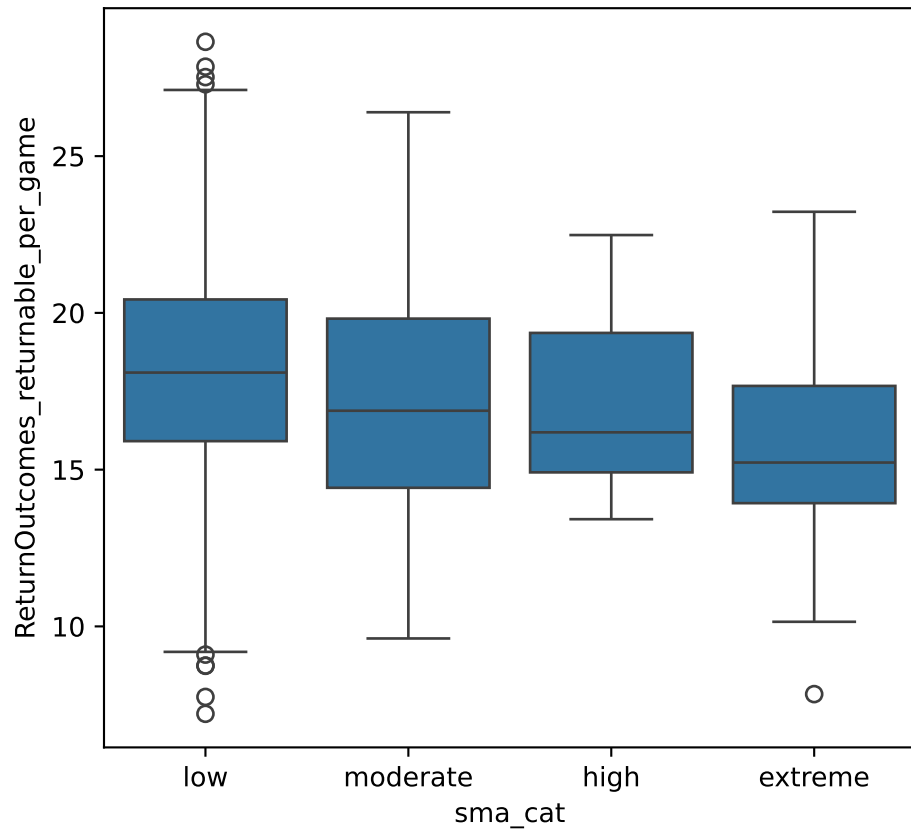
ReturnOutcomes\_returnable\_per\_game - wbgc\_cat  
Kruskal p=0.000213, Jonckheere p=NA, Corr p=1.5209313452005703e-05  
ReturnOutcomes\_returnable\_per\_game by wbgc\_cat  
ReturnOutcomes\_returnable\_per\_game vs wbgc (Spearman r=-0.15, p=0.000)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_returnable\_per\_game by wbgt\_cat

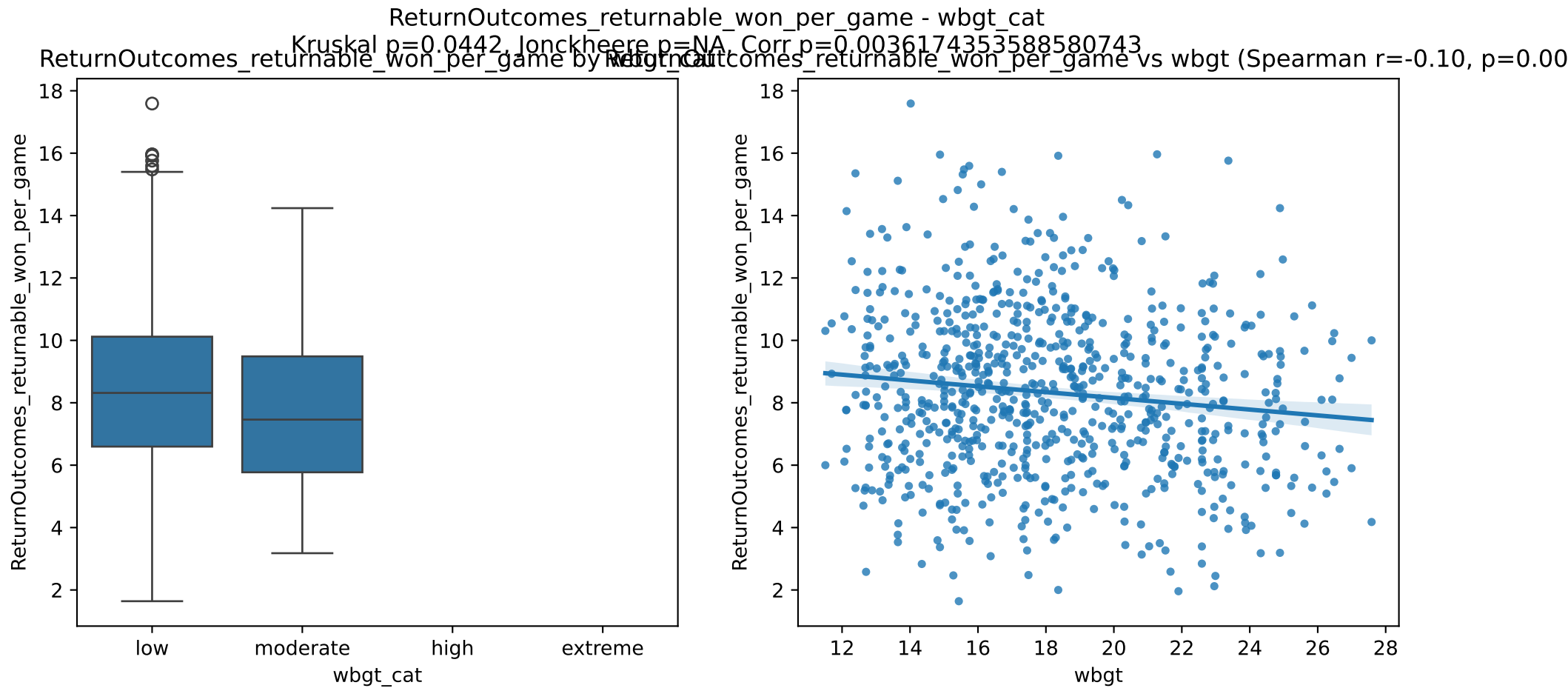
|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

ReturnOutcomes\_returnable\_per\_game - sma\_cat  
Kruskal p=0.00038, Jonckheere p=NA, Corr p=8.499904259418253e-05  
ReturnOutcomes\_returnable\_per\_game by sma\_cat  
ReturnOutcomes\_returnable\_per\_game vs temp\_C (Spearman r=-0.14, p=0.000)



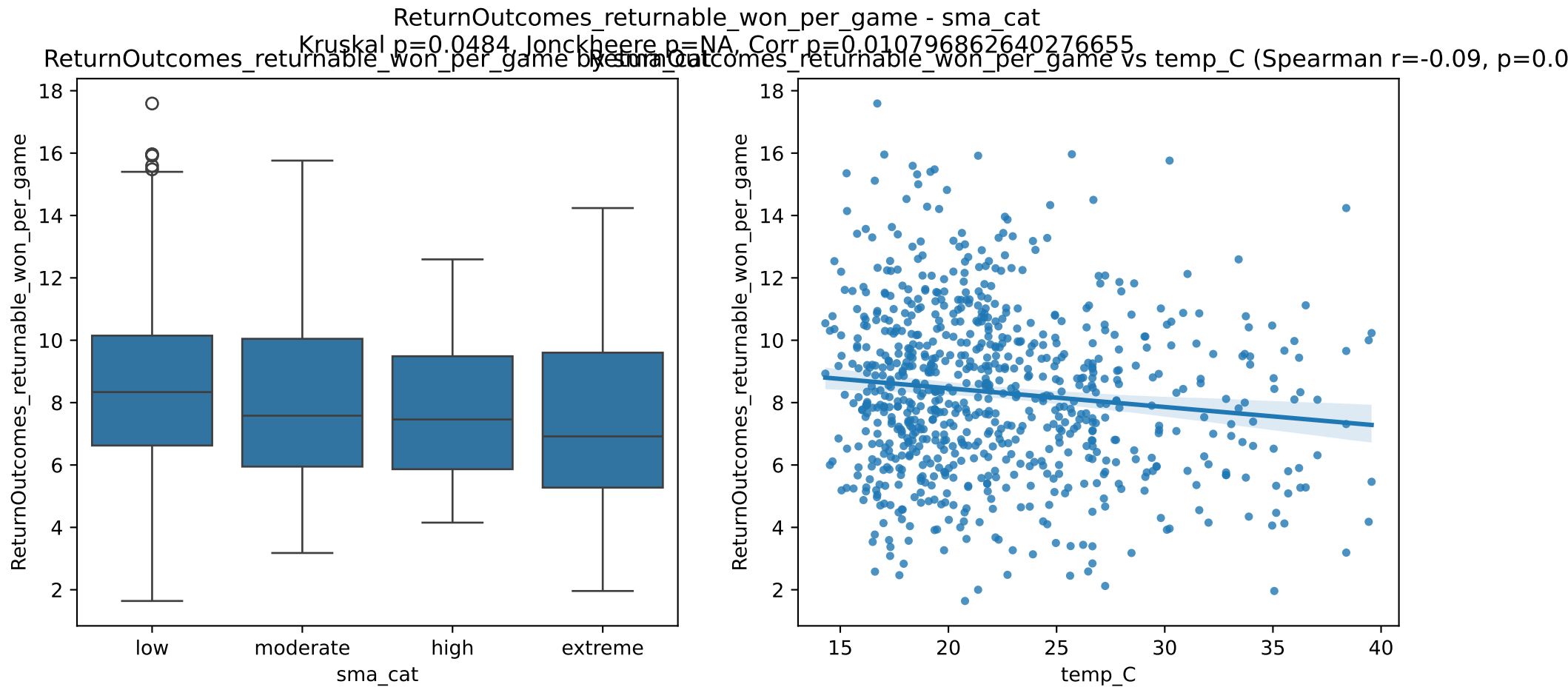
Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_returnable\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.003 | 0.862    |
| high     | 1.0     | 1.0   | 0.168 | 1.0      |
| low      | 0.003   | 0.168 | 1.0   | 0.621    |
| moderate | 0.862   | 1.0   | 0.621 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_returnable\_won\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.044    |
| moderate | 0.044 | 1.0      |

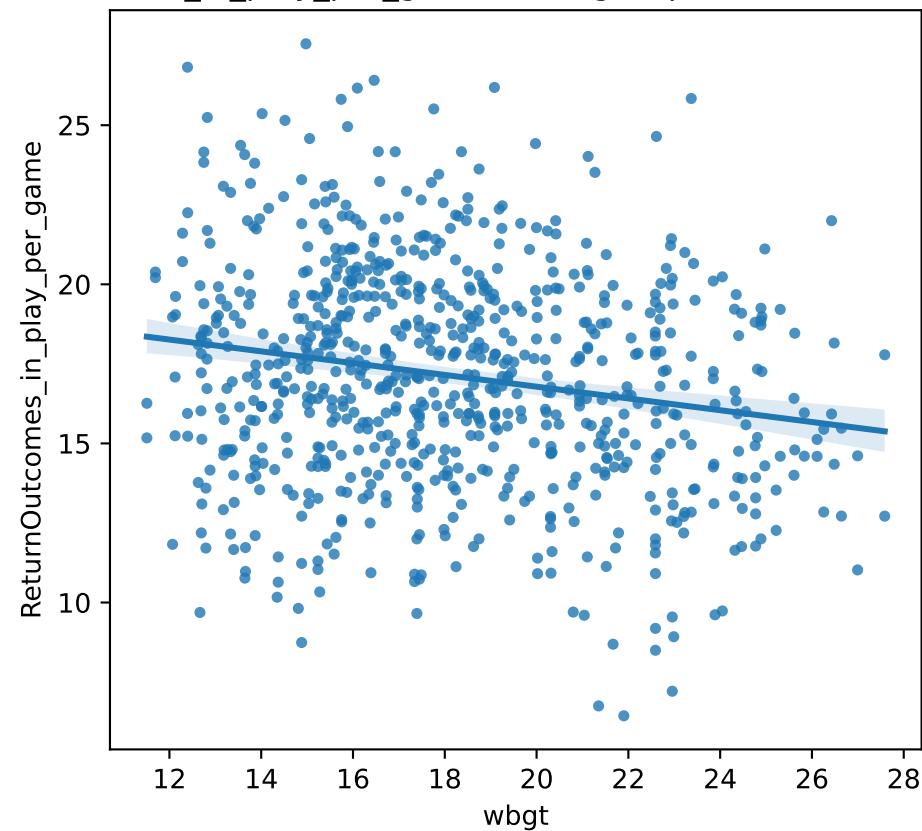
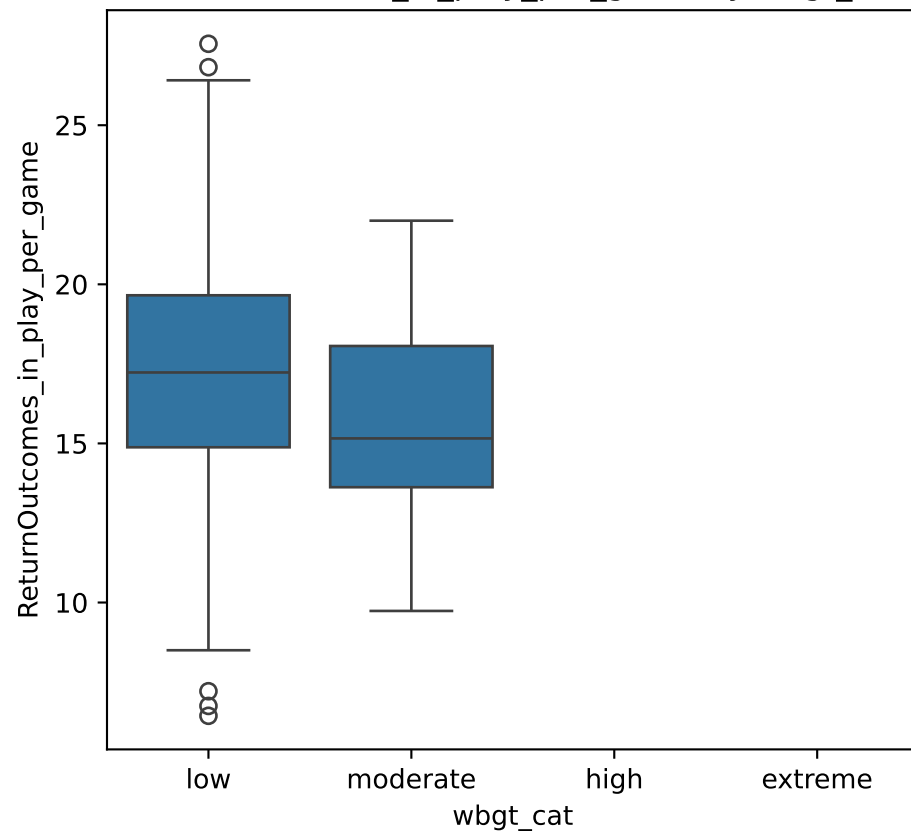


Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_returnable\_won\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.135 | 1.0      |
| high     | 1.0     | 1.0   | 0.868 | 1.0      |
| low      | 0.135   | 0.868 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |



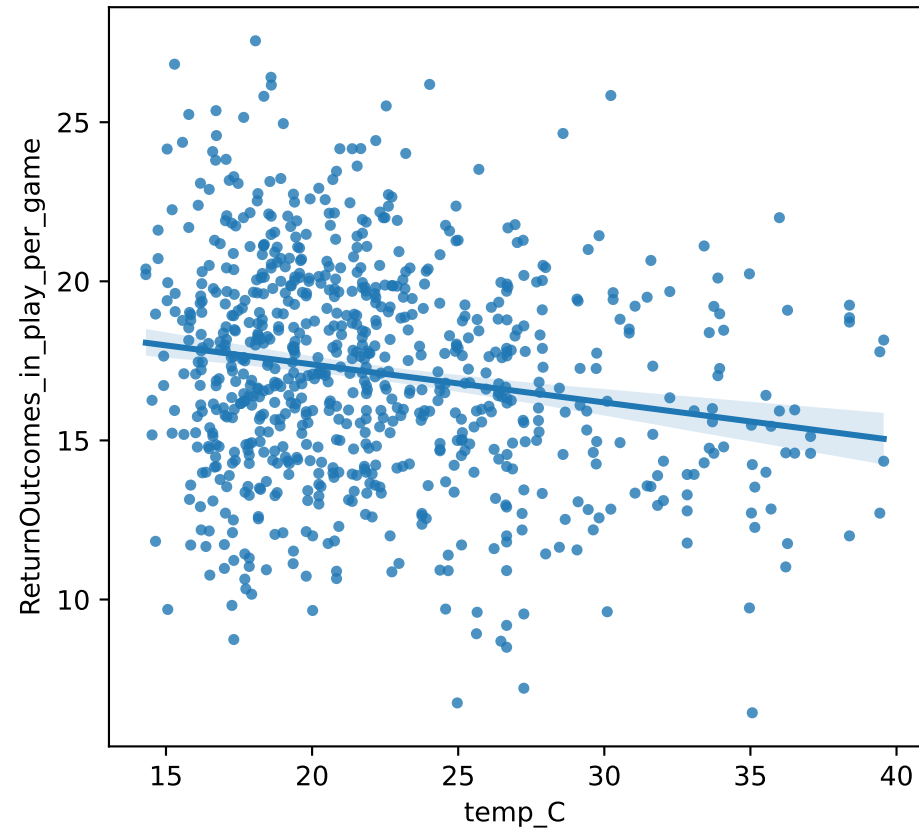
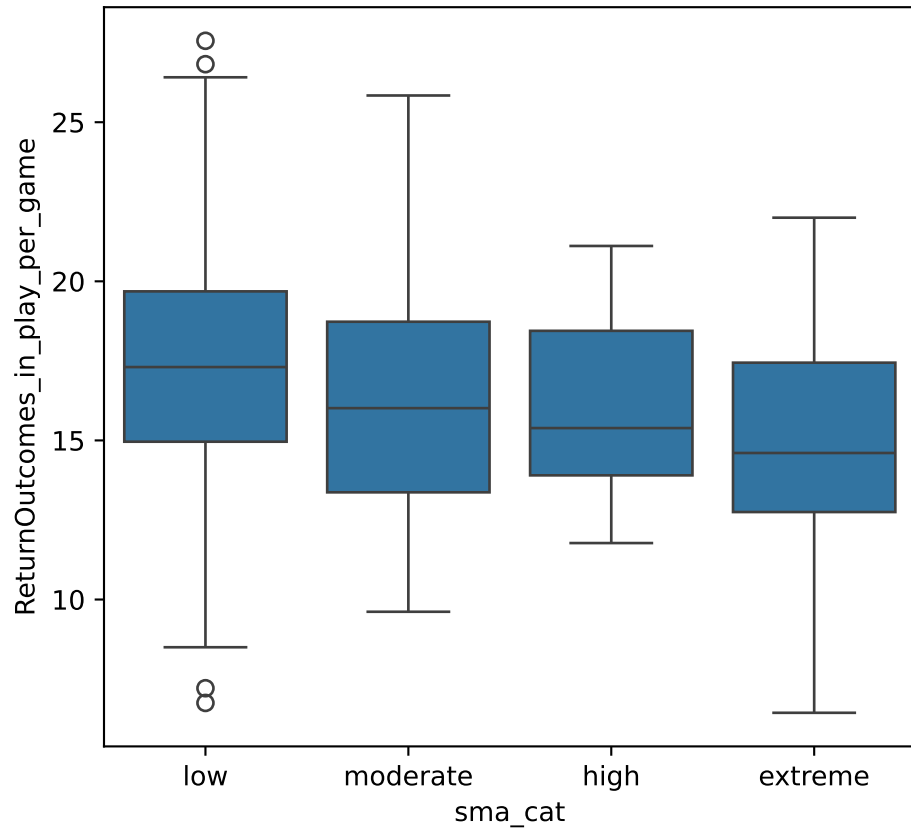
ReturnOutcomes\_in\_play\_per\_game - wbgc\_cat  
Kruskal p=0.000149, Jonckheere p=NA, Corr p=3.0902886901782968e-06  
ReturnOutcomes\_in\_play\_per\_game by wbgc\_cat  
ReturnOutcomes\_in\_play\_per\_game vs wbgc (Spearman r=-0.17, p=0.000)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_in\_play\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

ReturnOutcomes\_in\_play\_per\_game - sma\_cat  
Kruskal p=0.000201, Jonckheere p=NA, Corr p=2.352576736645629e-05  
ReturnOutcomes\_in\_play\_per\_game by sma\_cat  
ReturnOutcomes\_in\_play\_per\_game vs temp\_C (Spearman r=-0.15, p=0.000)

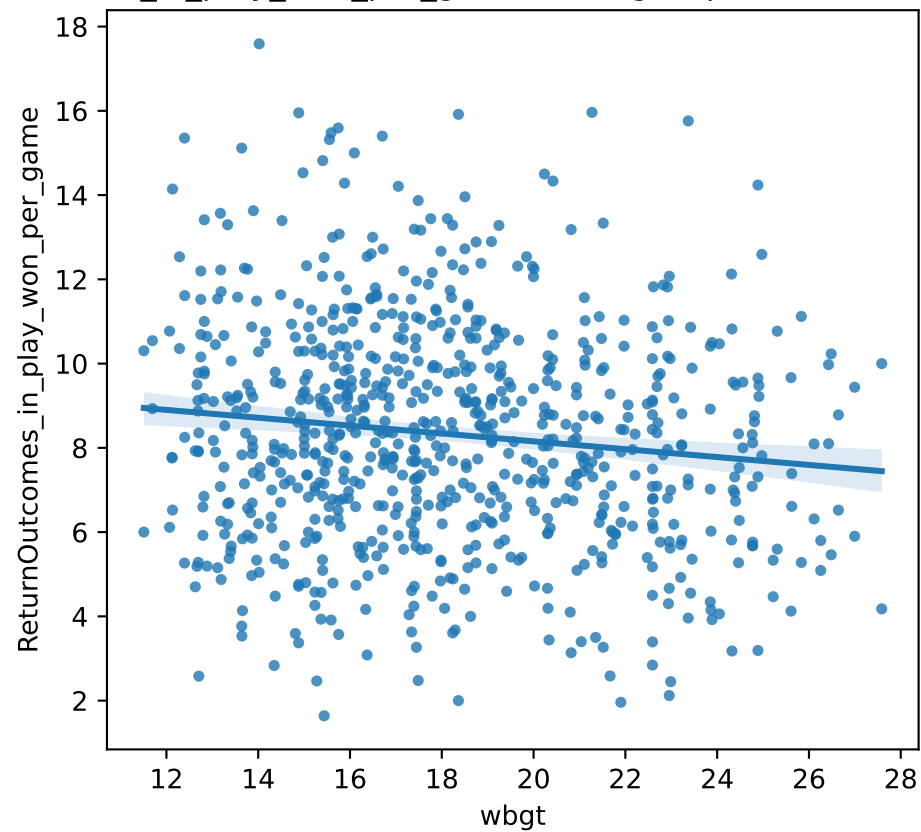
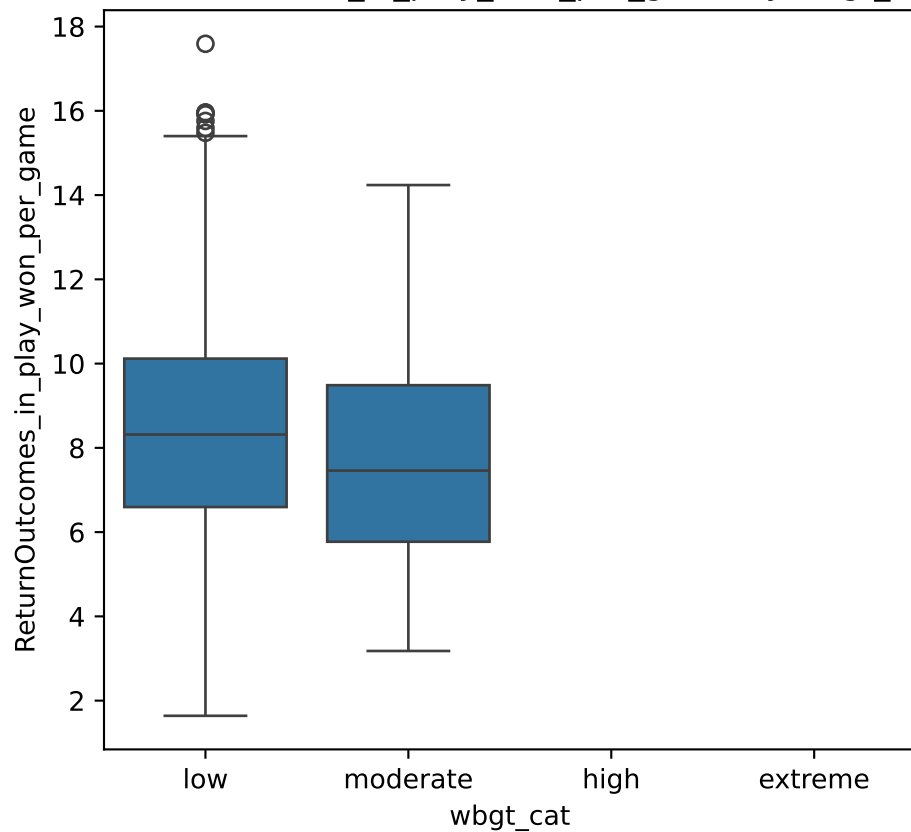


Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_in\_play\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.003 | 1.0      |
| high     | 1.0     | 1.0   | 0.102 | 1.0      |
| low      | 0.003   | 0.102 | 1.0   | 0.444    |
| moderate | 1.0     | 1.0   | 0.444 | 1.0      |

ReturnOutcomes\_in\_play\_won\_per\_game - wbgt\_cat  
Kruskal p=0.0442, Jonckheere p=NA, Corr p=0.0036174353588580743

ReturnOutcomes\_in\_play\_won\_per\_game by wbgt\_cat  
ReturnOutcomes\_in\_play\_won\_per\_game vs wbgt (Spearman r=-0.10, p=0.004)

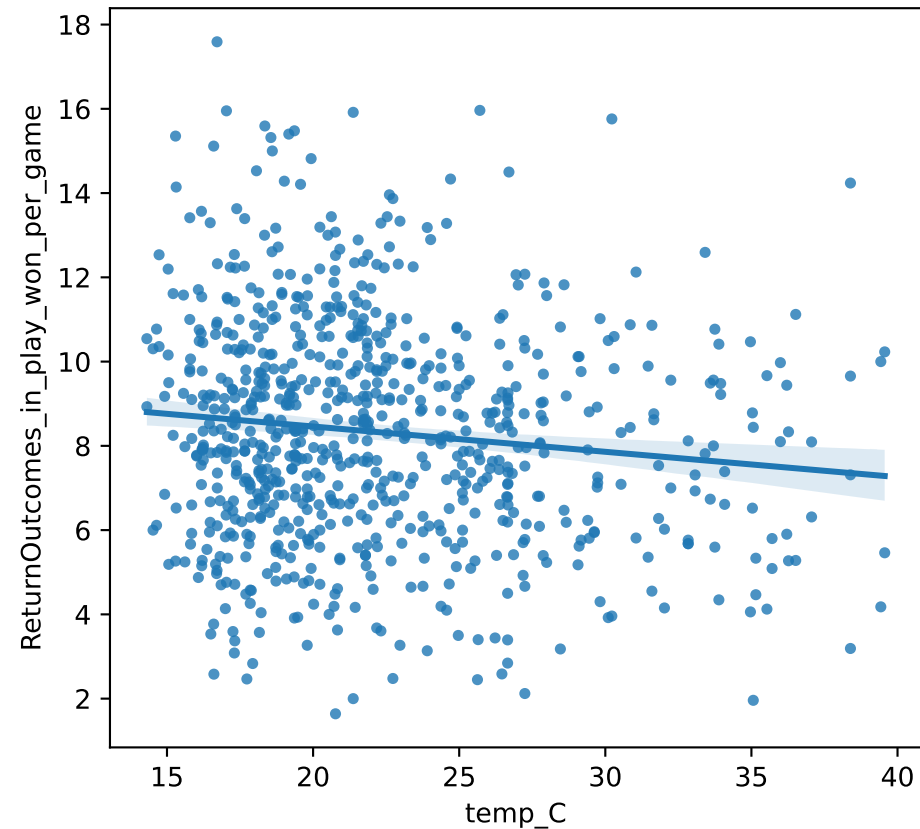
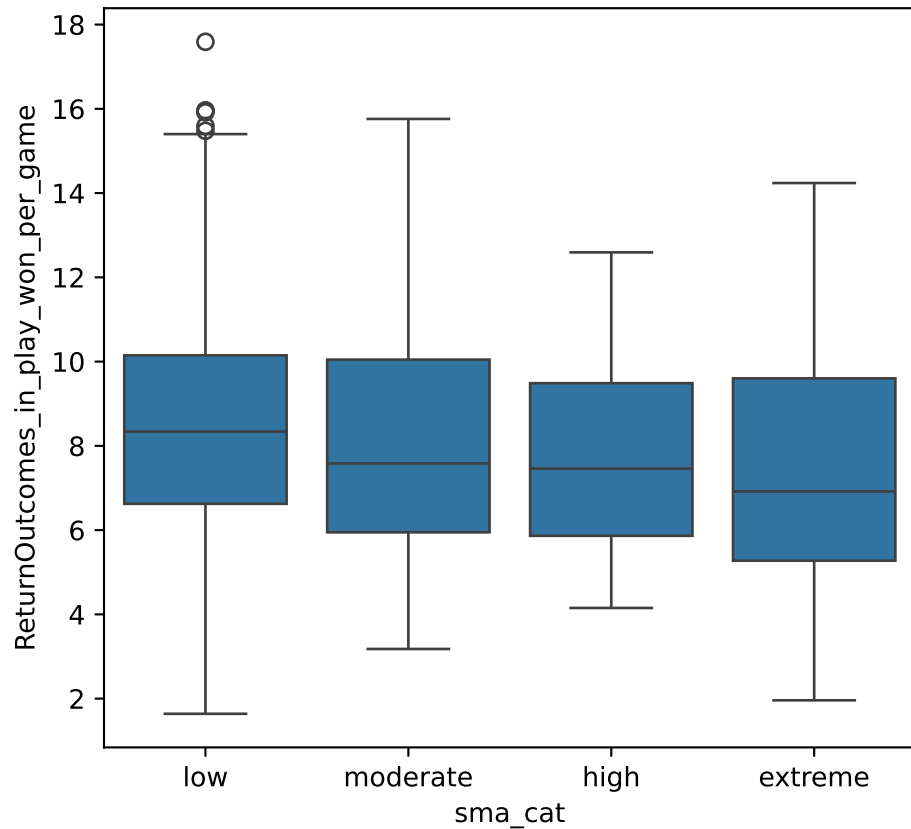


Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_in\_play\_won\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.044    |
| moderate | 0.044 | 1.0      |

ReturnOutcomes\_in\_play\_won\_per\_game - sma\_cat  
Kruskal p=0.0484, Jonckheere p=NA, Corr p=0.010796862640276655

ReturnOutcomes\_in\_play\_won\_per\_game by sma\_cat  
ReturnOutcomes\_in\_play\_won\_per\_game vs temp\_C (Spearman r=-0.09, p=0.011)

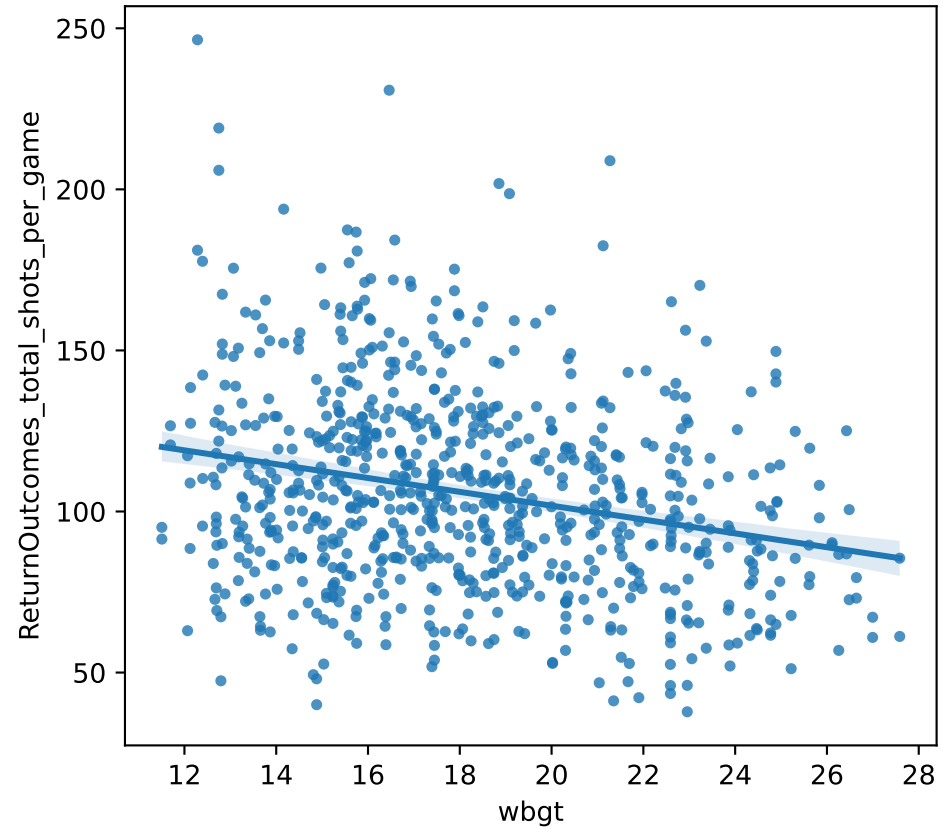
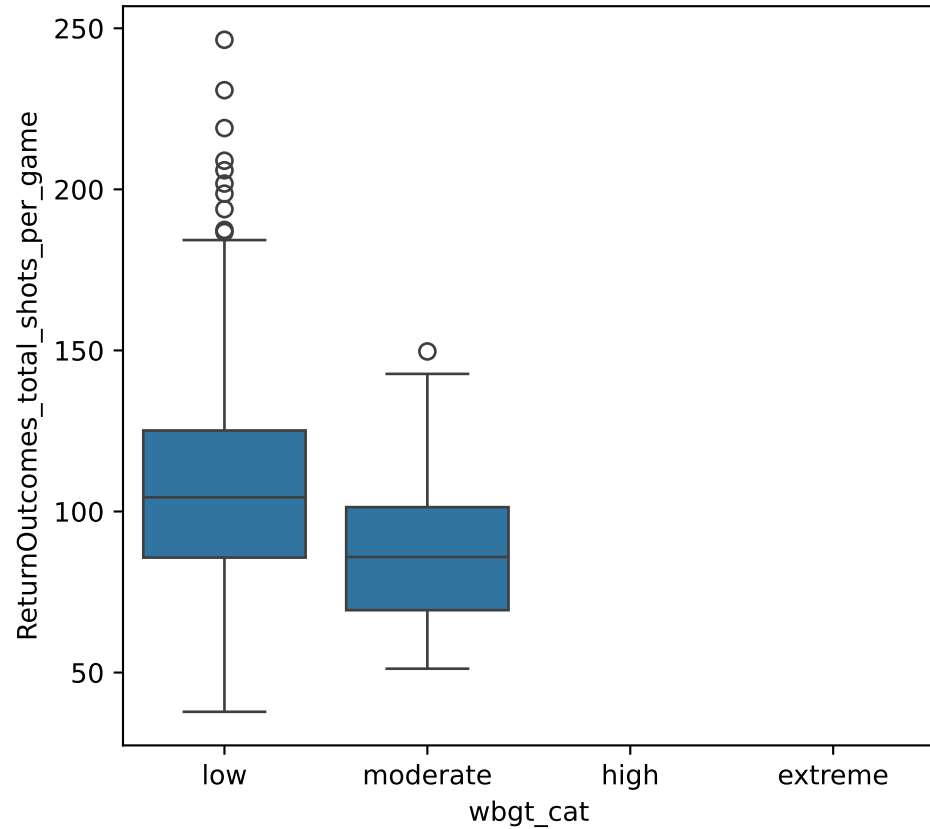


Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_in\_play\_won\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.135 | 1.0      |
| high     | 1.0     | 1.0   | 0.868 | 1.0      |
| low      | 0.135   | 0.868 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |



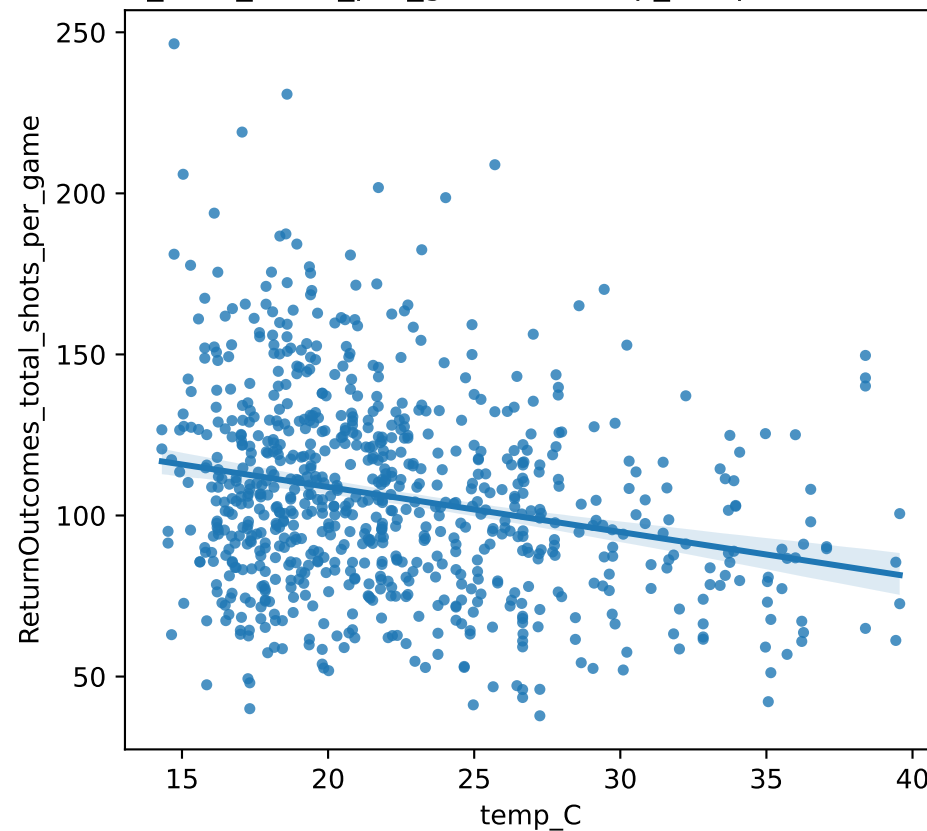
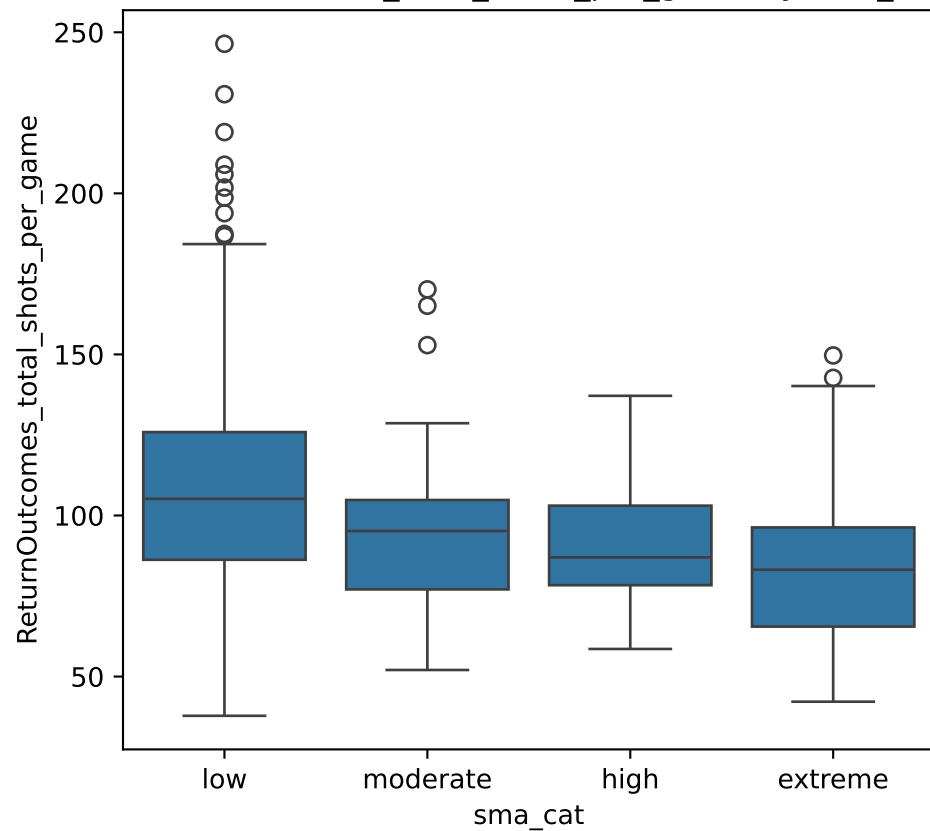
ReturnOutcomes\_total\_shots\_per\_game - wbgt\_cat  
Kruskal p=2.45e-06, Jonckheere p=NA, Corr p=2.2049033469605328e-10  
ReturnOutcomes\_total\_shots\_per\_game by wbgt\_cat  
ReturnOutcomes\_total\_shots\_per\_game vs wbgt (Spearman r=-0.22, p=0.000)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_total\_shots\_per\_game by wbgt\_cat

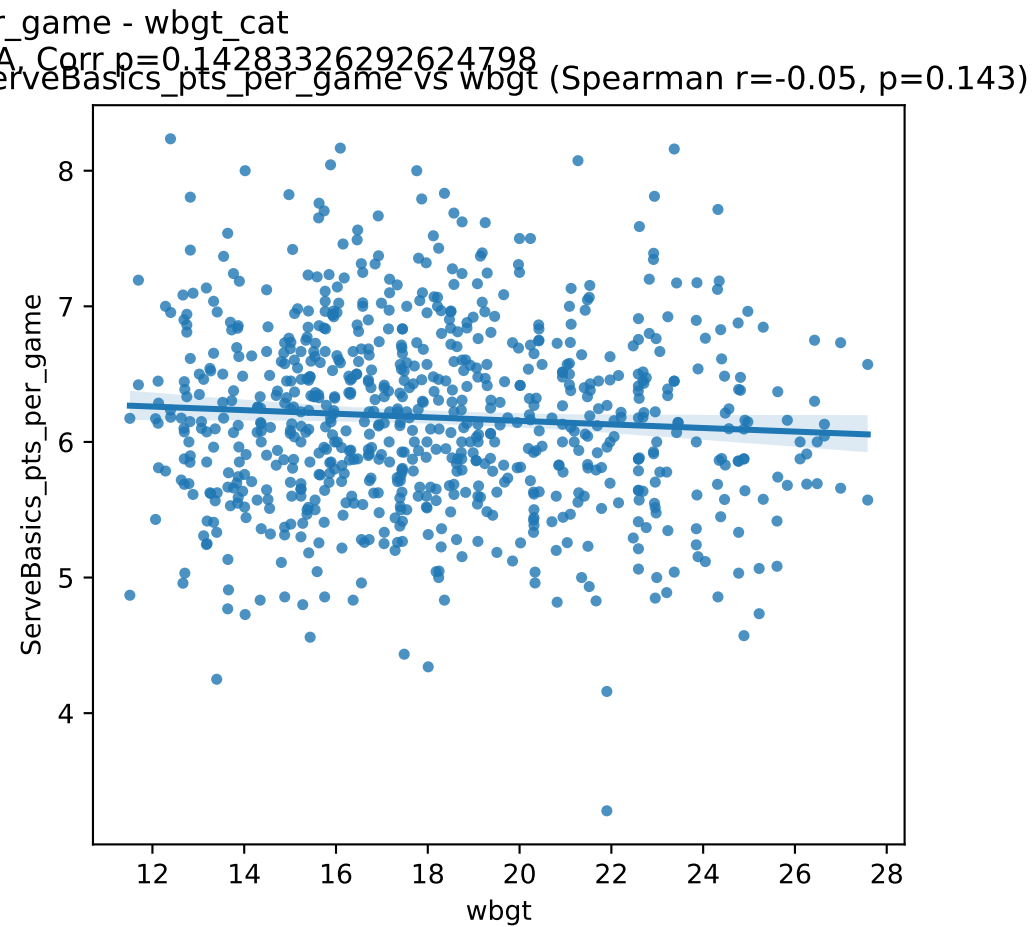
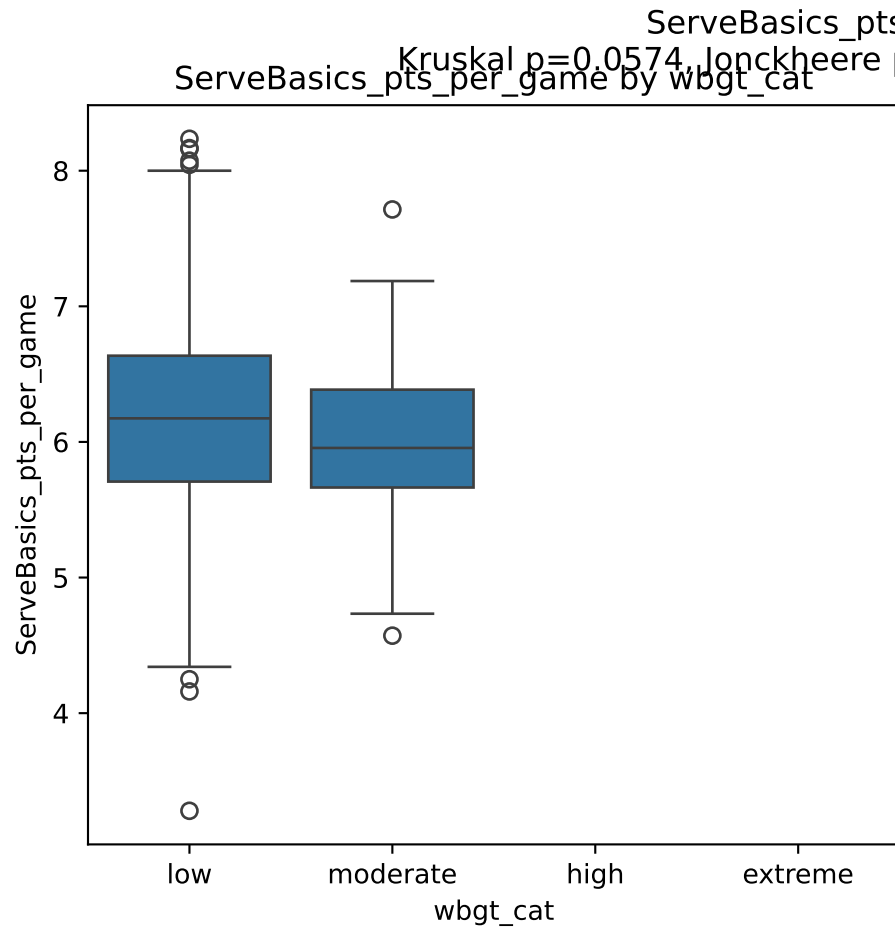
|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

ReturnOutcomes\_total\_shots\_per\_game - sma\_cat  
Kruskal p=5.53e-07, Jonckheere p=NA, Corr p=1.904424560063395e-09  
ReturnOutcomes\_total\_shots\_per\_game by sma\_cat  
ReturnOutcomes\_total\_shots\_per\_game vs temp\_C (Spearman r=-0.21, p=0.000)



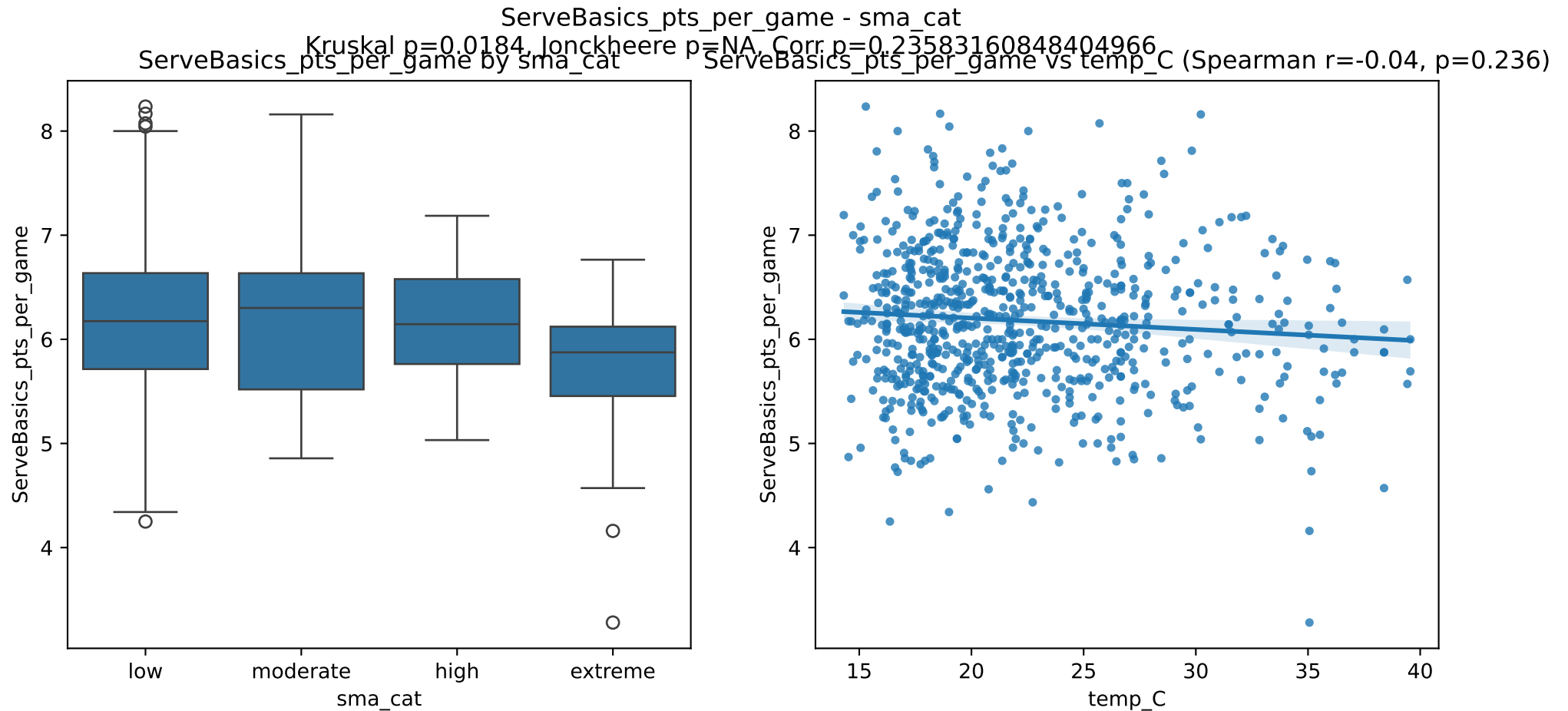
Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_total\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.003 | 1.0      |
| low      | 0.0     | 0.003 | 1.0   | 0.065    |
| moderate | 1.0     | 1.0   | 0.065 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ServeBasics\_pts\_per\_game by wbgt\_cat

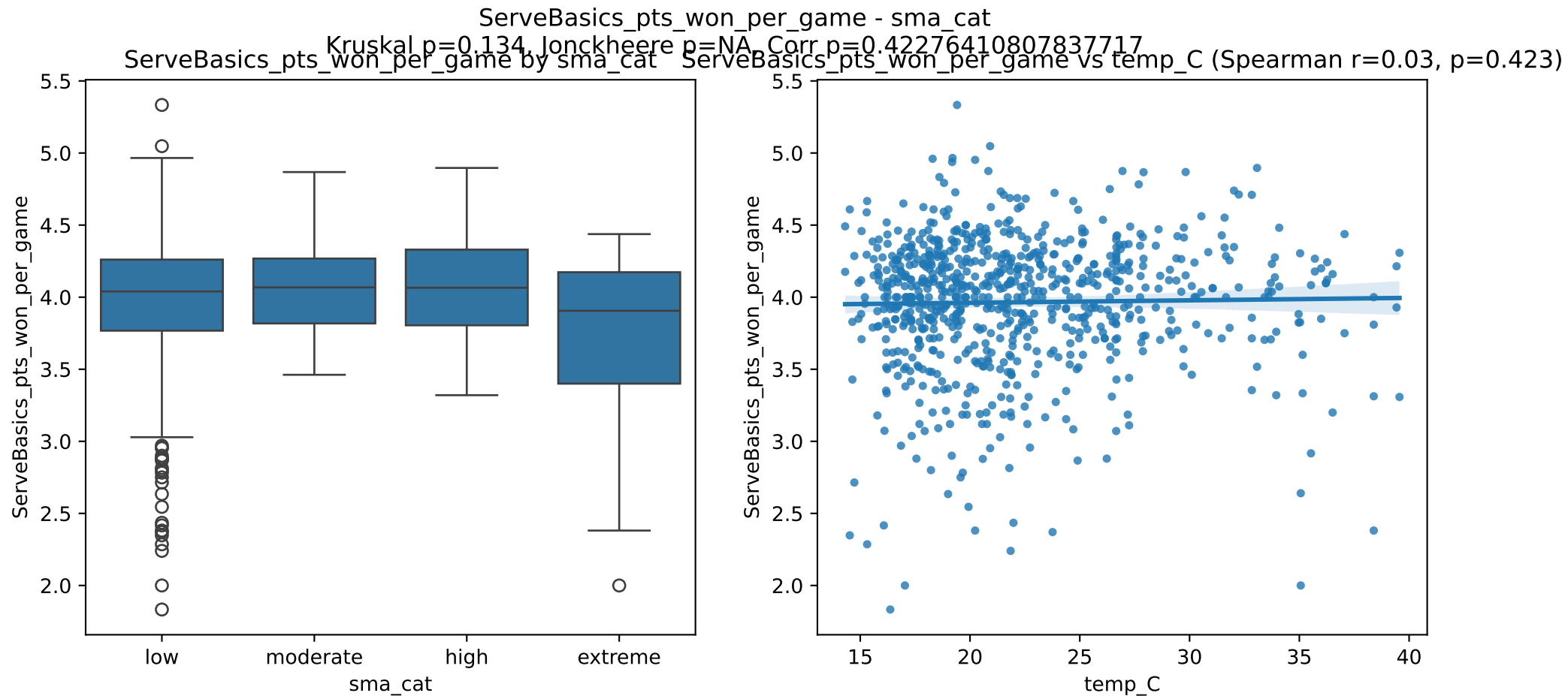
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.057    |
| moderate | 0.057 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ServeBasics\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.128 | 0.009 | 0.142    |
| high     | 0.128   | 1.0   | 1.0   | 1.0      |
| low      | 0.009   | 1.0   | 1.0   | 1.0      |
| moderate | 0.142   | 1.0   | 1.0   | 1.0      |

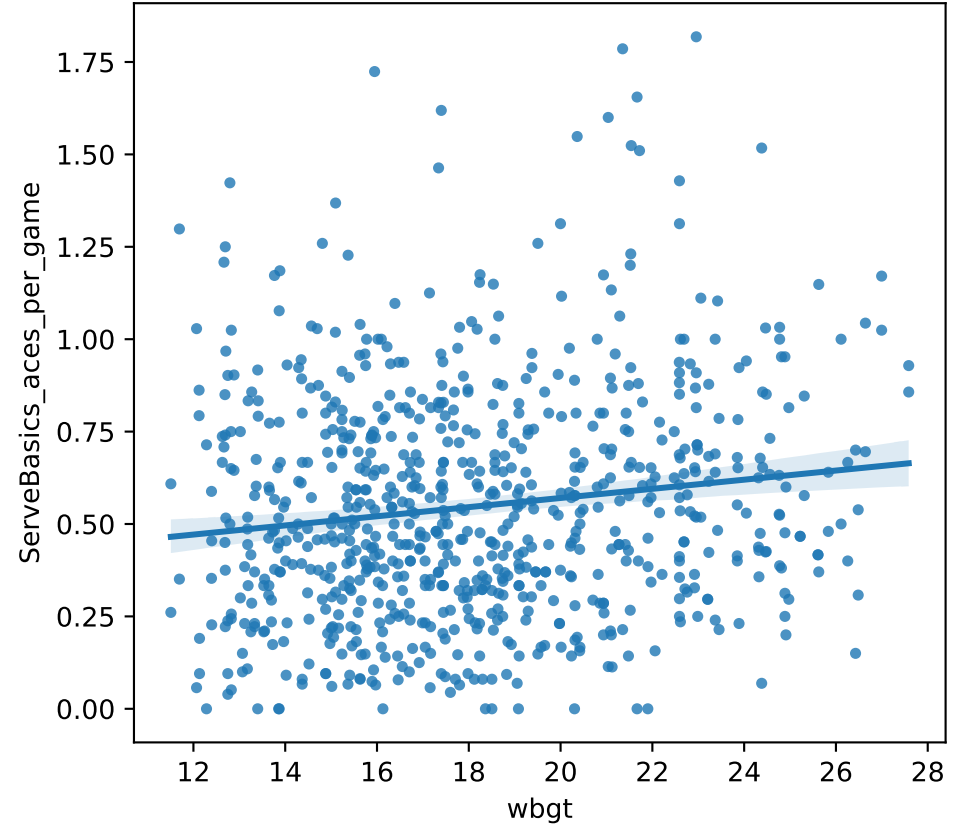
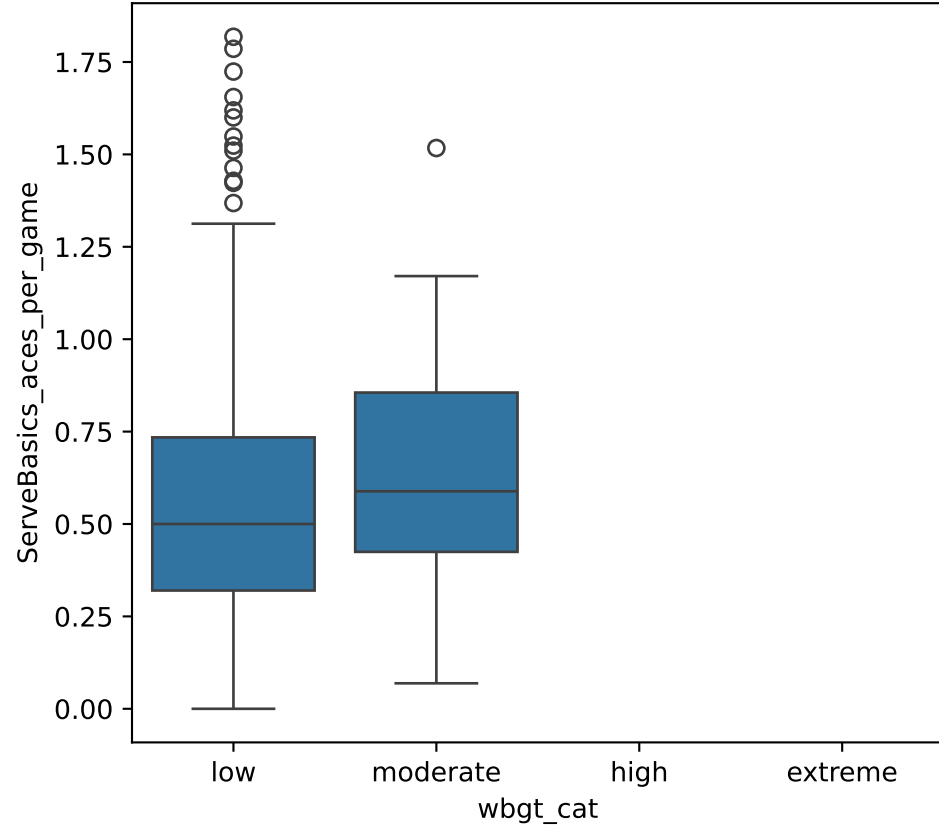




Dunn Post-hoc (p-değerleri)  
ServeBasics\_pts\_won\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.194 | 0.526 | 0.319    |
| high     | 0.194   | 1.0   | 1.0   | 1.0      |
| low      | 0.526   | 1.0   | 1.0   | 1.0      |
| moderate | 0.319   | 1.0   | 1.0   | 1.0      |

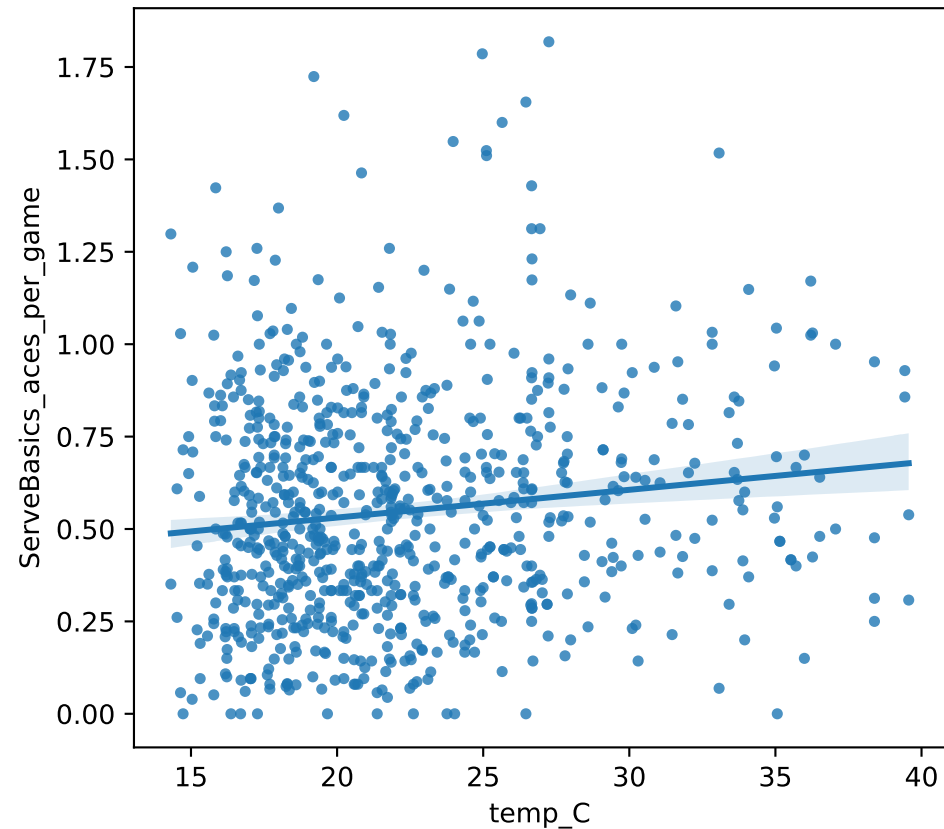
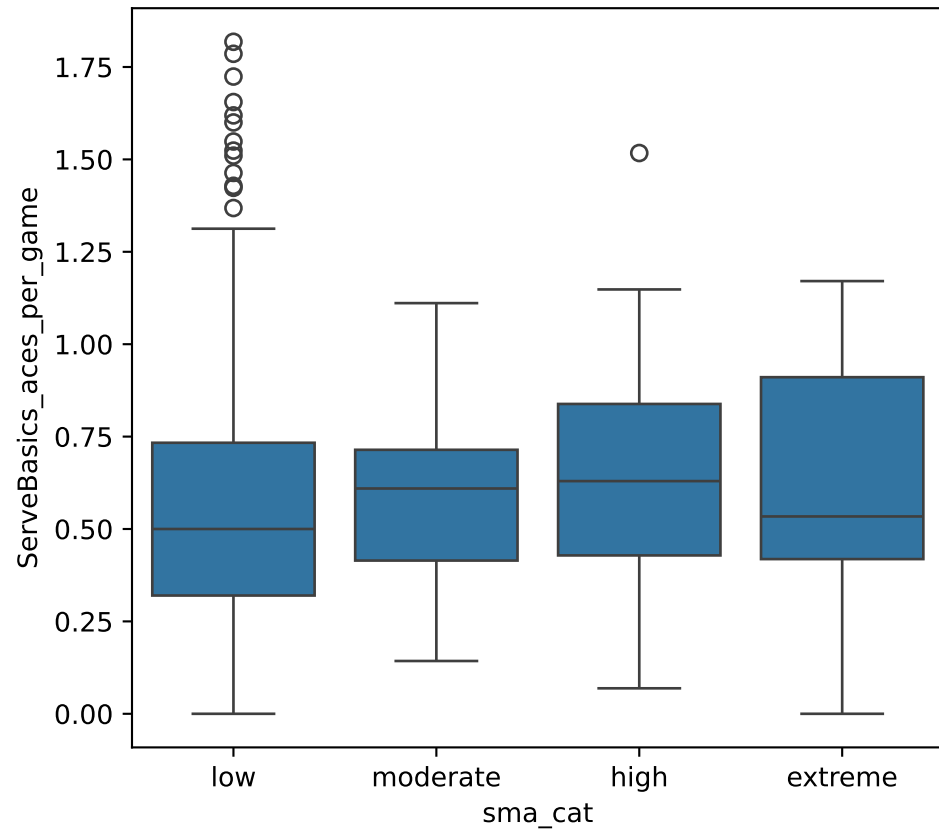
ServeBasics\_aces\_per\_game - wbgt\_cat  
Kruskal p=0.0148, Jonckheere p=NA, Corr p=0.0003904396137770147  
ServeBasics\_aces\_per\_game by wbgt\_cat  
ServeBasics\_aces\_per\_game vs wbgt (Spearman r=0.13, p=0.000)



Dunn Post-hoc (p-değerleri)  
ServeBasics\_aces\_per\_game by wbgc\_cat

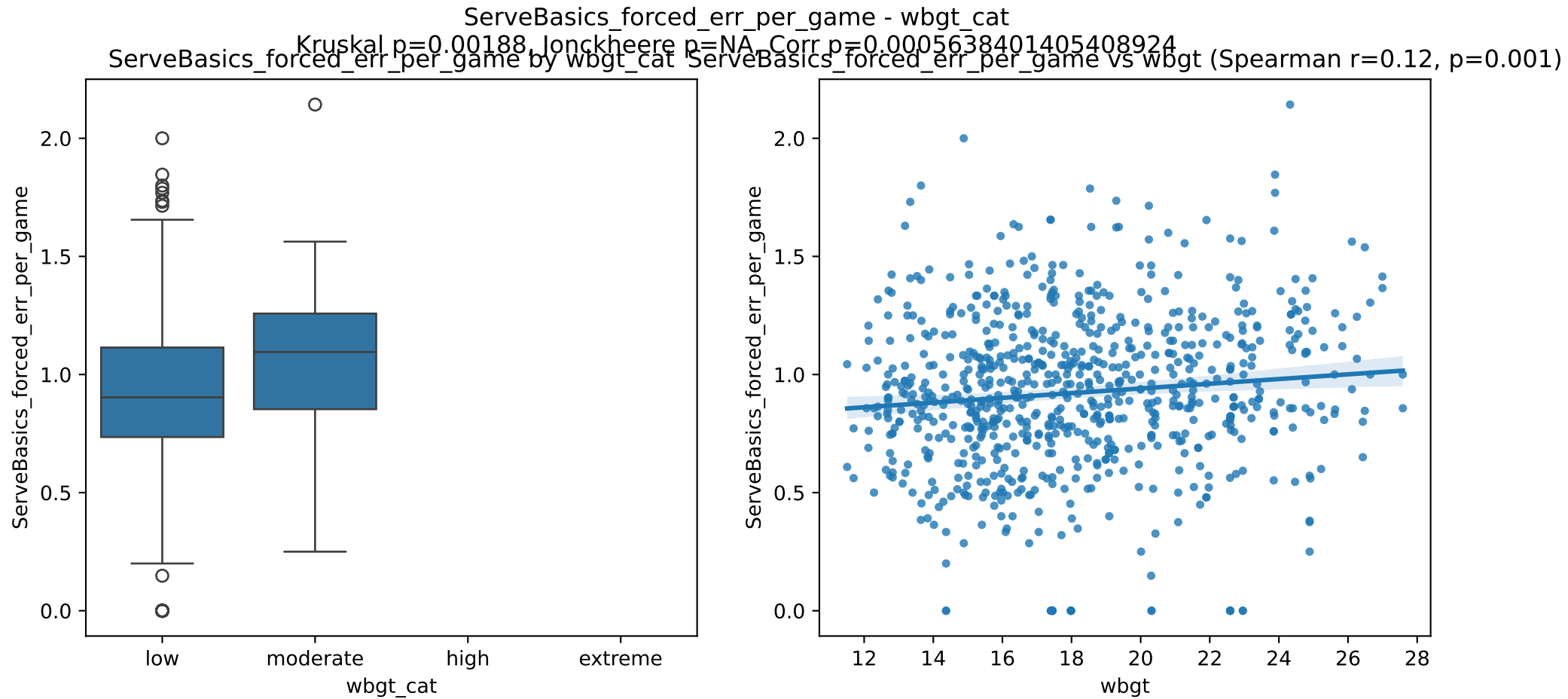
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.015    |
| moderate | 0.015 | 1.0      |

ServeBasics\_aces\_per\_game - sma\_cat  
Kruskal p=0.0312, Jonckheere p=NA, Corr p=0.0012403441270695276  
ServeBasics\_aces\_per\_game by sma\_cat  
ServeBasics\_aces\_per\_game vs temp\_C (Spearman r=0.12, p=0.001)



Dunn Post-hoc (p-değerleri)  
ServeBasics\_aces\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.72  | 1.0      |
| high     | 1.0     | 1.0  | 0.16  | 1.0      |
| low      | 0.72    | 0.16 | 1.0   | 0.779    |
| moderate | 1.0     | 1.0  | 0.779 | 1.0      |

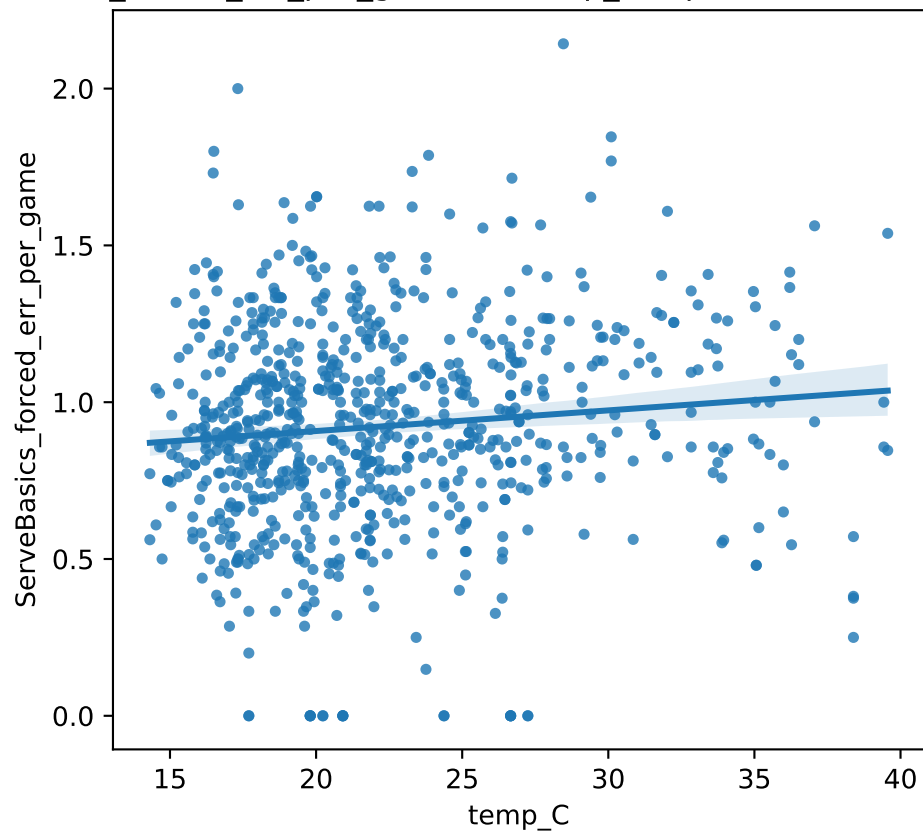
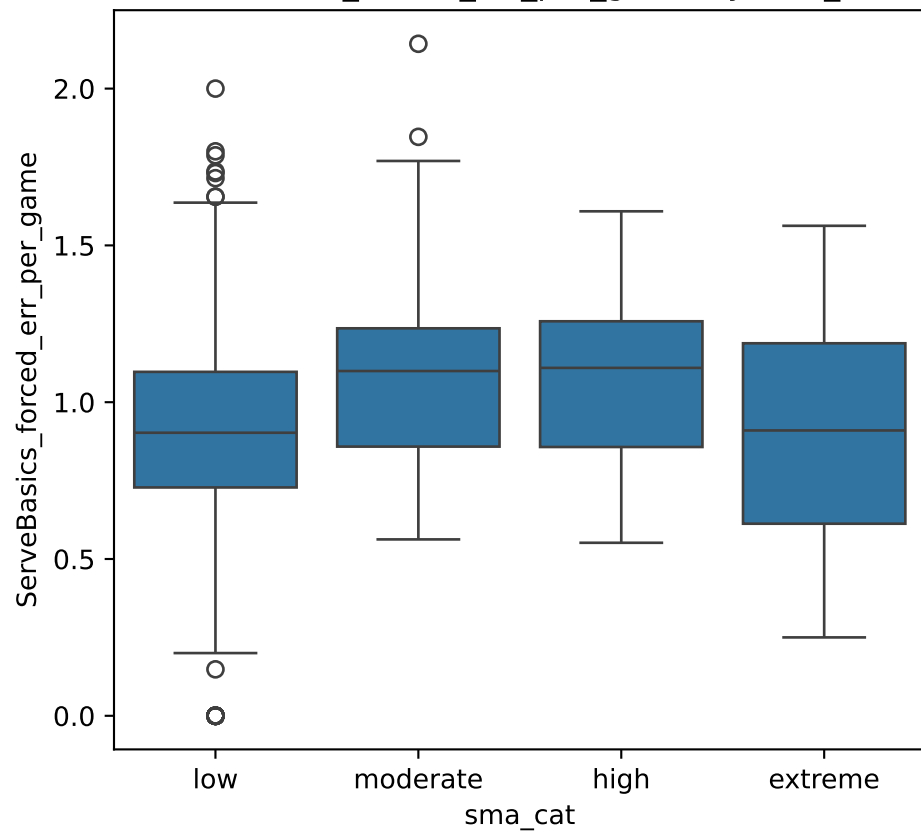


Dunn Post-hoc (p-değerleri)  
ServeBasics\_forced\_err\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.002    |
| moderate | 0.002 | 1.0      |

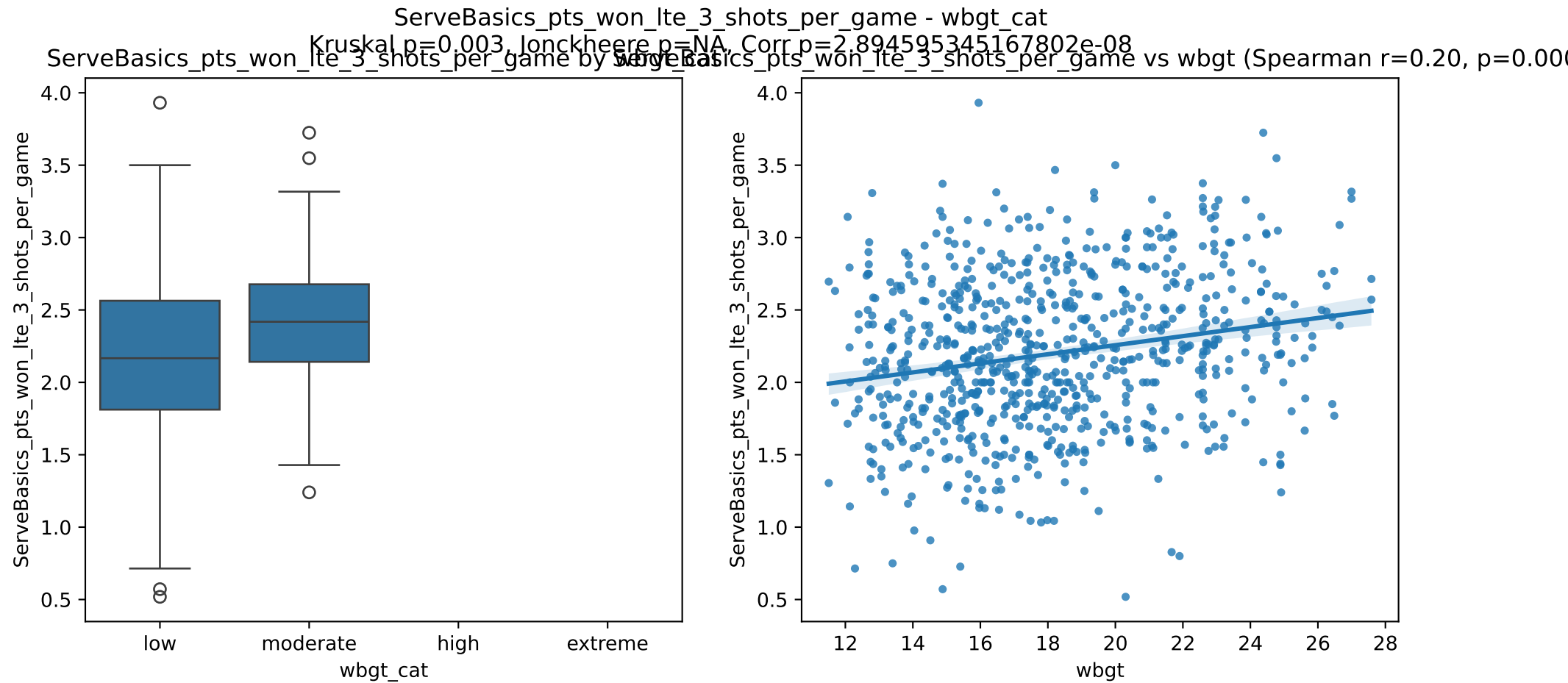


ServeBasics\_forced\_err\_per\_game - sma\_cat  
Kruskal p=0.000581, Jonckheere p=NA, Corr p=0.0004926528639402356  
ServeBasics\_forced\_err\_per\_game by sma\_cat  
ServeBasics\_forced\_err\_per\_game vs temp\_C (Spearman r=0.12, p=0.000)



Dunn Post-hoc (p-değerleri)  
ServeBasics\_forced\_err\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.323 | 1.0   | 0.323    |
| high     | 0.323   | 1.0   | 0.015 | 1.0      |
| low      | 1.0     | 0.015 | 1.0   | 0.015    |
| moderate | 0.323   | 1.0   | 0.015 | 1.0      |

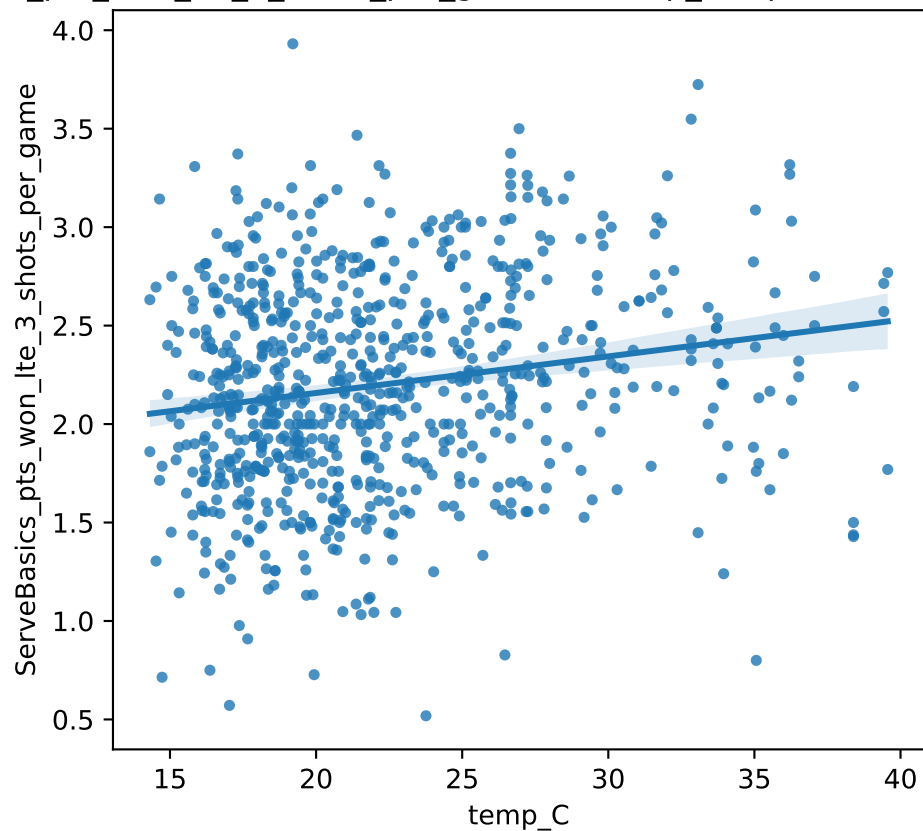
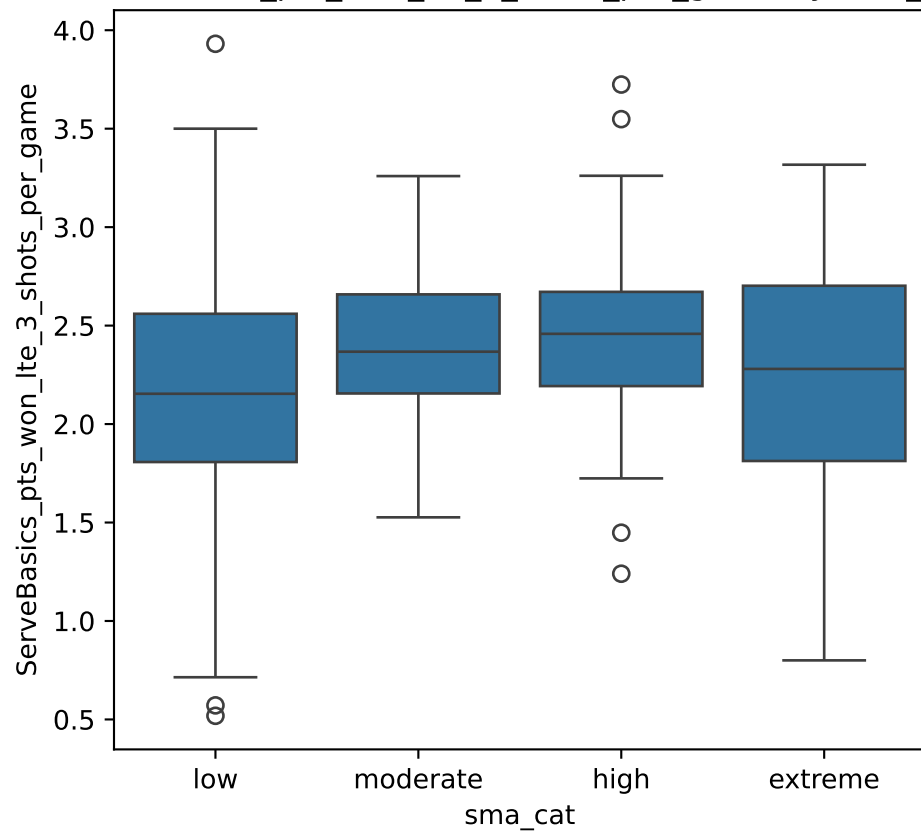


Dunn Post-hoc (p-değerleri)  
ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.003    |
| moderate | 0.003 | 1.0      |

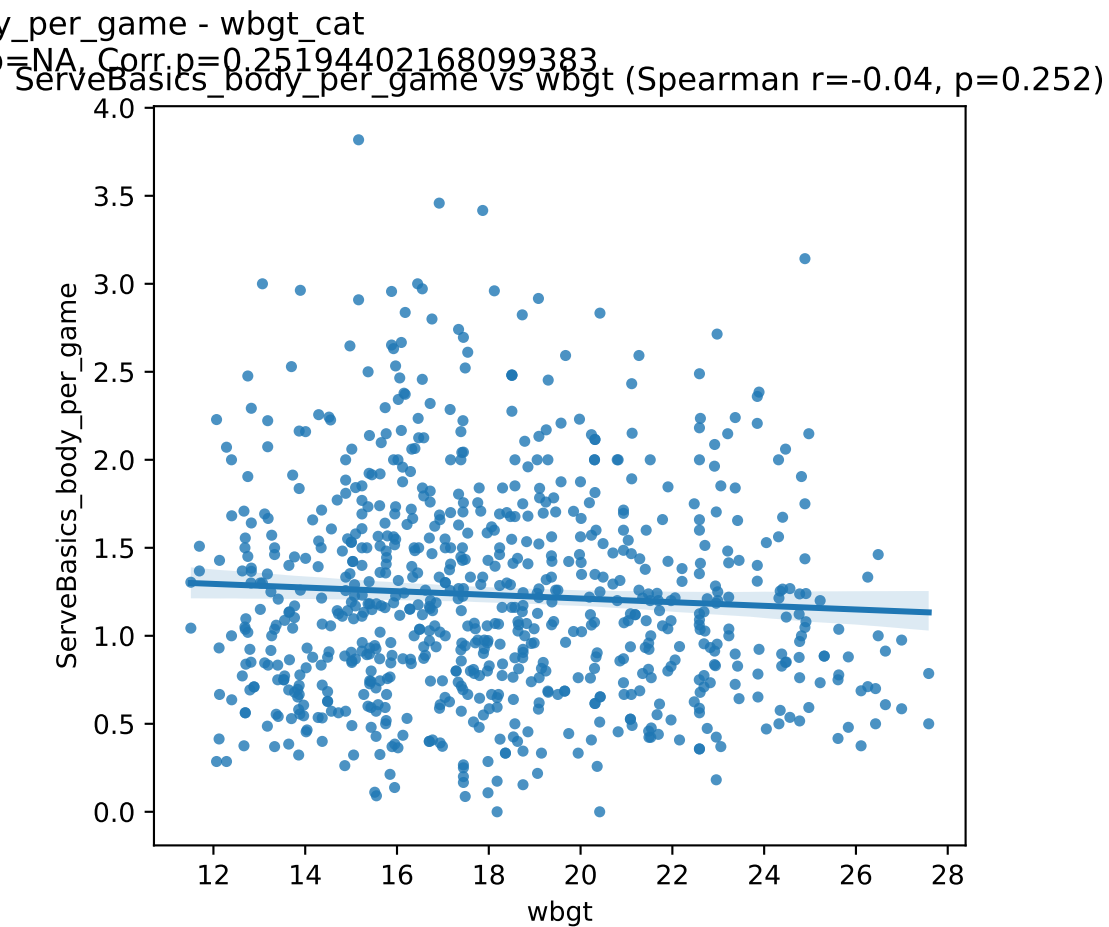
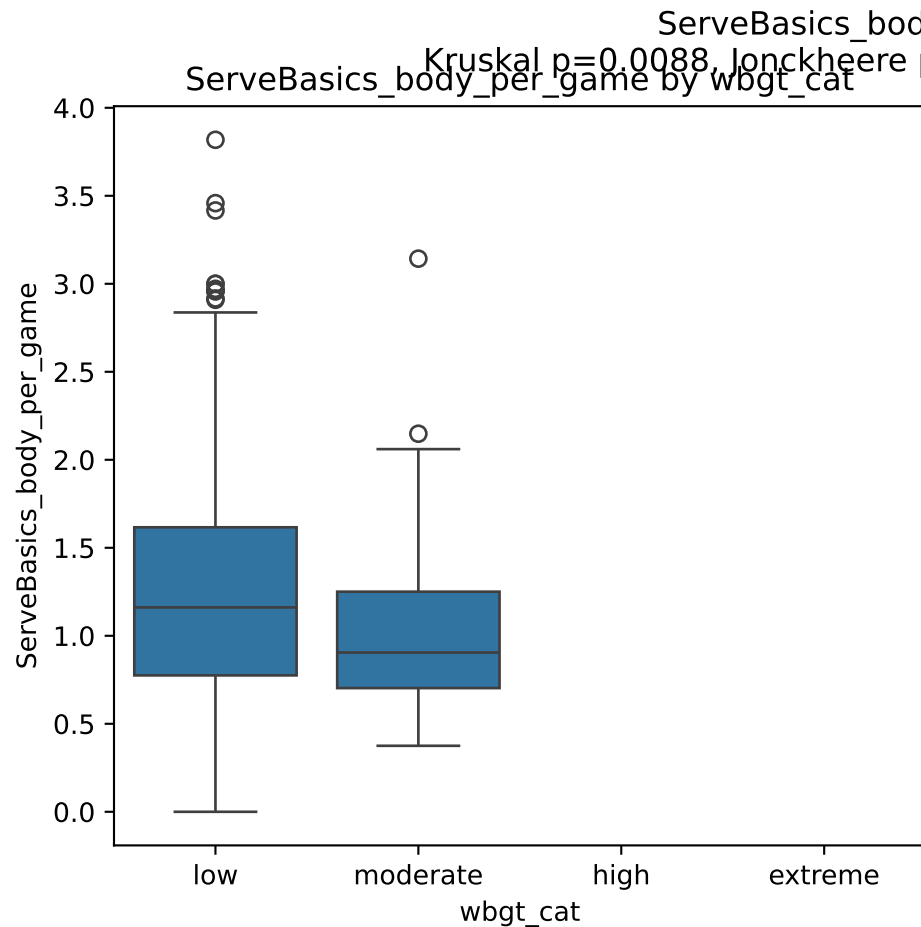
Kruskal p=0.00235, Jonckheere p=NA, Corr p=7.223549942869705e-08

ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game vs temp\_C (Spearman  $r=0.19$ ,  $p=0.00235$ , Jonckheere  $p=NA$ , Coll  $p=7.423549342809705E-08$ )



Dunn Post-hoc (p-değerleri)  
ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game by sma\_cat

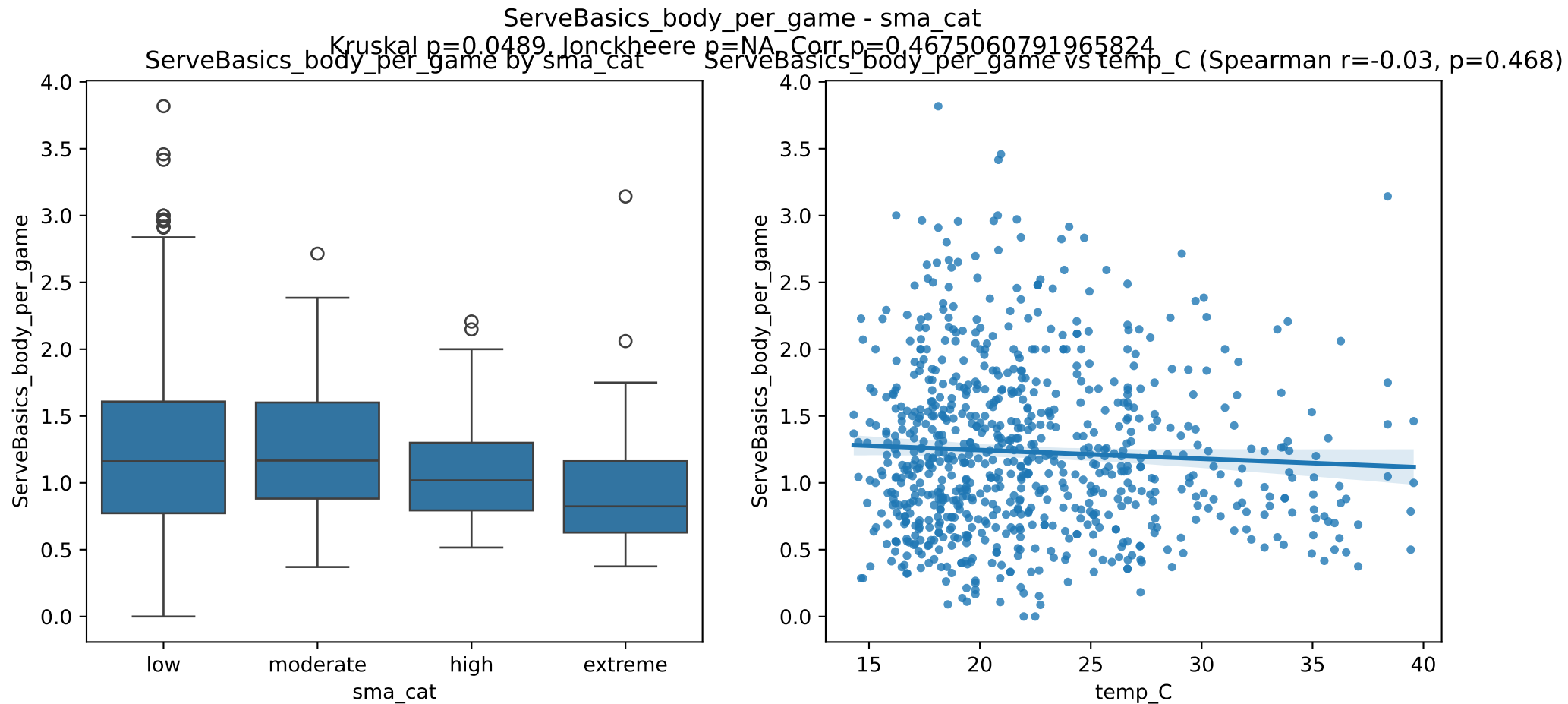
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.019 | 1.0      |
| low      | 1.0     | 0.019 | 1.0   | 0.092    |
| moderate | 1.0     | 1.0   | 0.092 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ServeBasics\_body\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.009    |
| moderate | 0.009 | 1.0      |

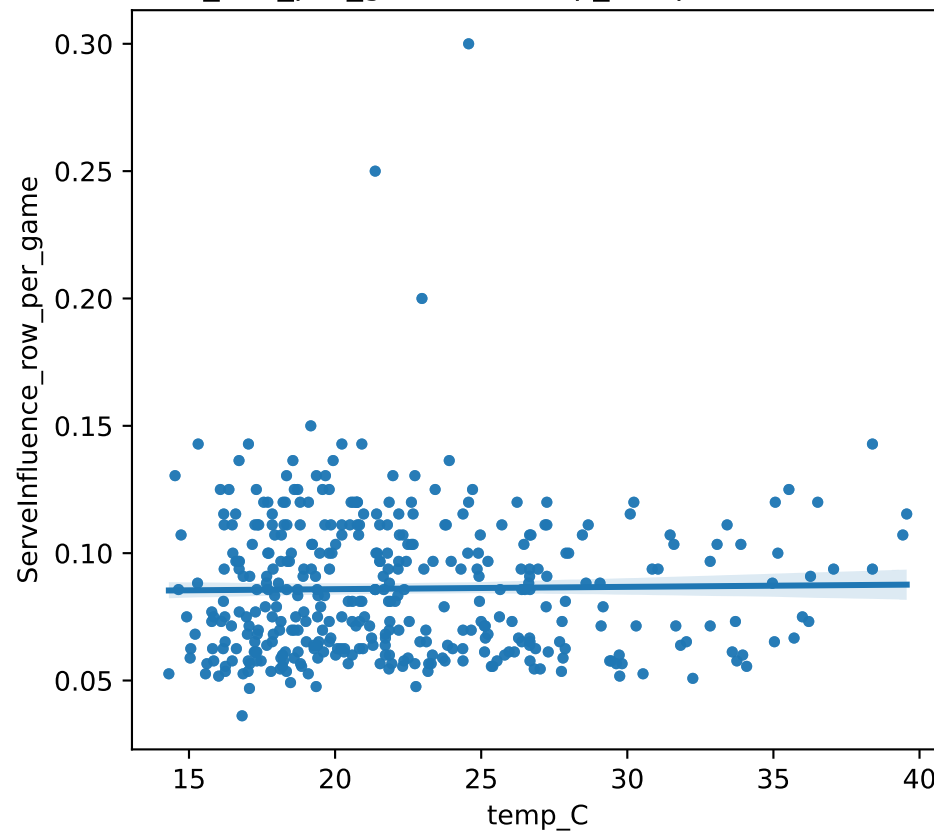
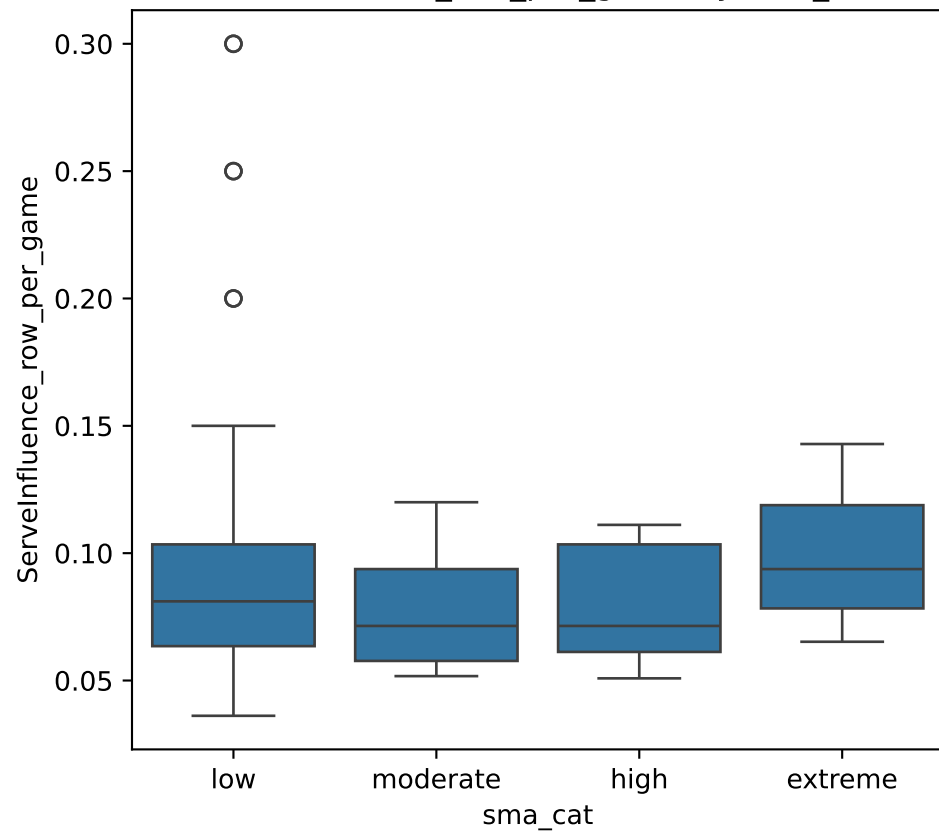




Dunn Post-hoc (p-değerleri)  
ServeBasics\_body\_per\_game by sma\_cat

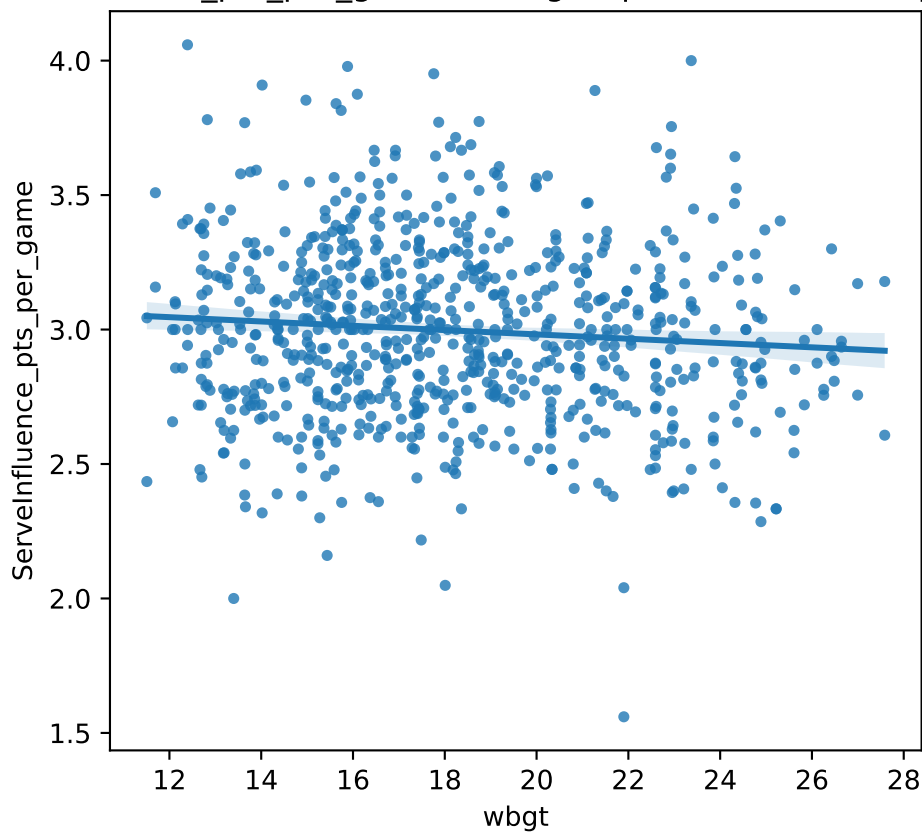
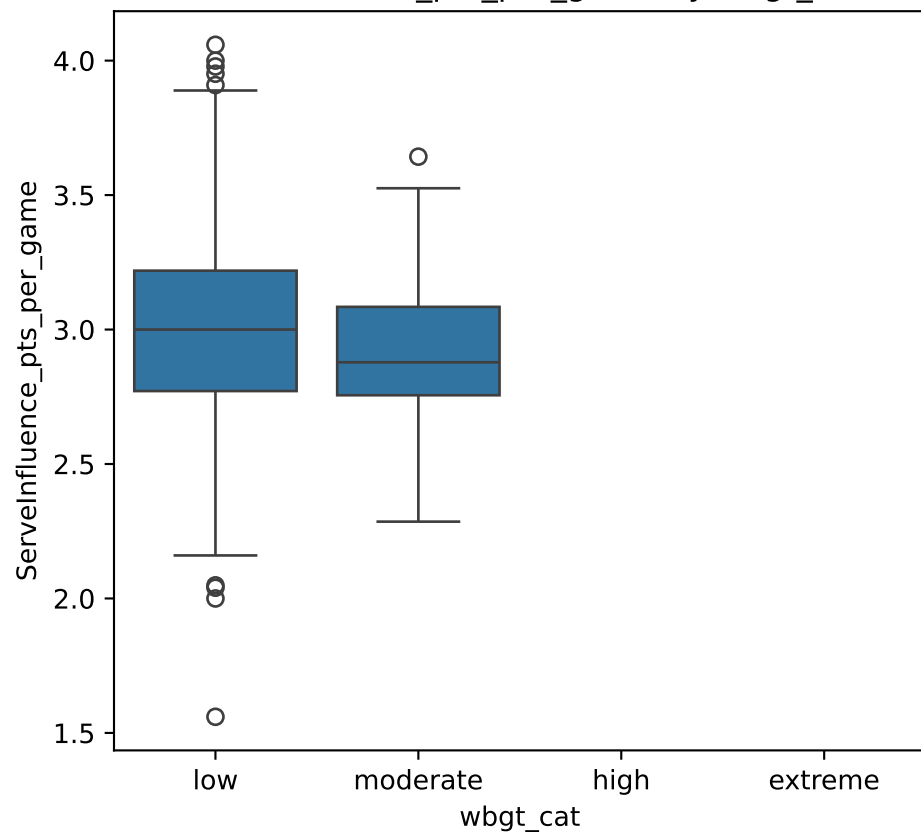
|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.051 | 0.163    |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 0.051   | 1.0  | 1.0   | 1.0      |
| moderate | 0.163   | 1.0  | 1.0   | 1.0      |

ServeInfluence\_row\_per\_game - sma\_cat  
Kruskal p=0.00244, lonckheere p=NA, Corr p=0.7279312784476644  
ServeInfluence\_row\_per\_game by sma\_cat  
ServeInfluence\_row\_per\_game vs temp\_C (Spearman r=0.01, p=0.728)



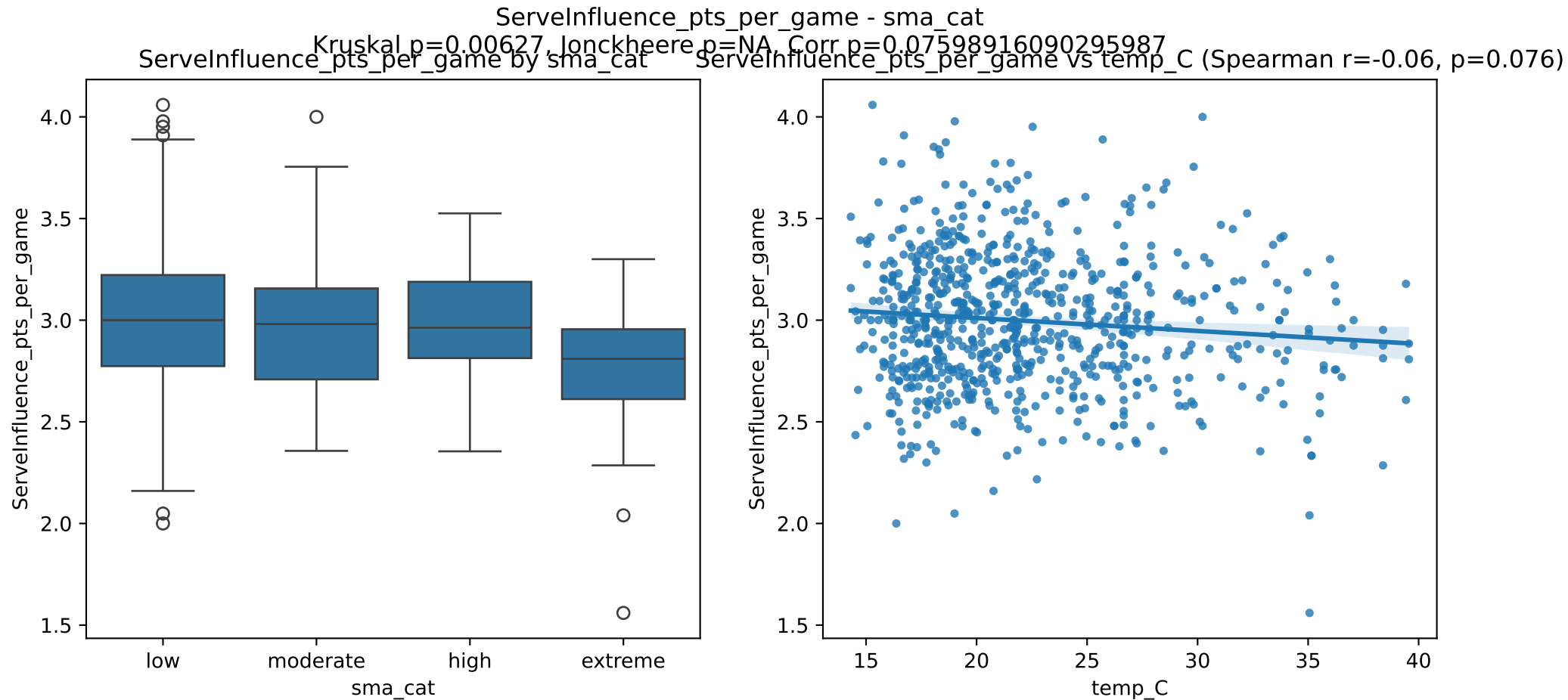
Dunn Post-hoc (p-değerleri)  
ServeInfluence\_row\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 0.01 | 0.016 | 0.003    |
| high     | 0.01    | 1.0  | 1.0   | 1.0      |
| low      | 0.016   | 1.0  | 1.0   | 0.486    |
| moderate | 0.003   | 1.0  | 0.486 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ServeInfluence\_pts\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.033    |
| moderate | 0.033 | 1.0      |

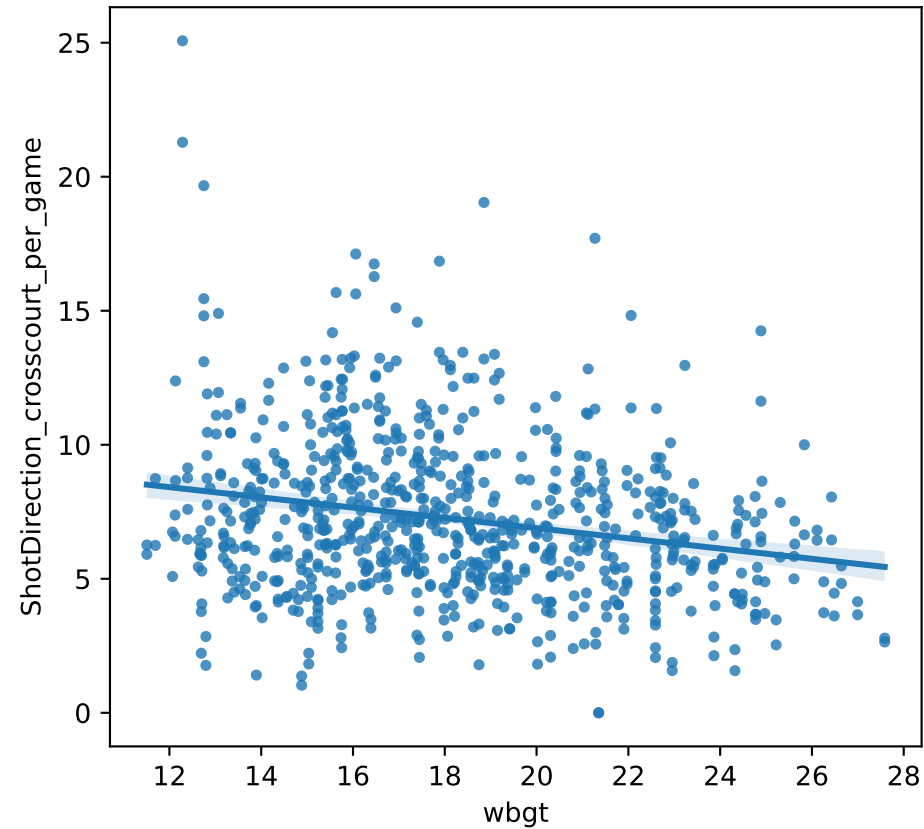
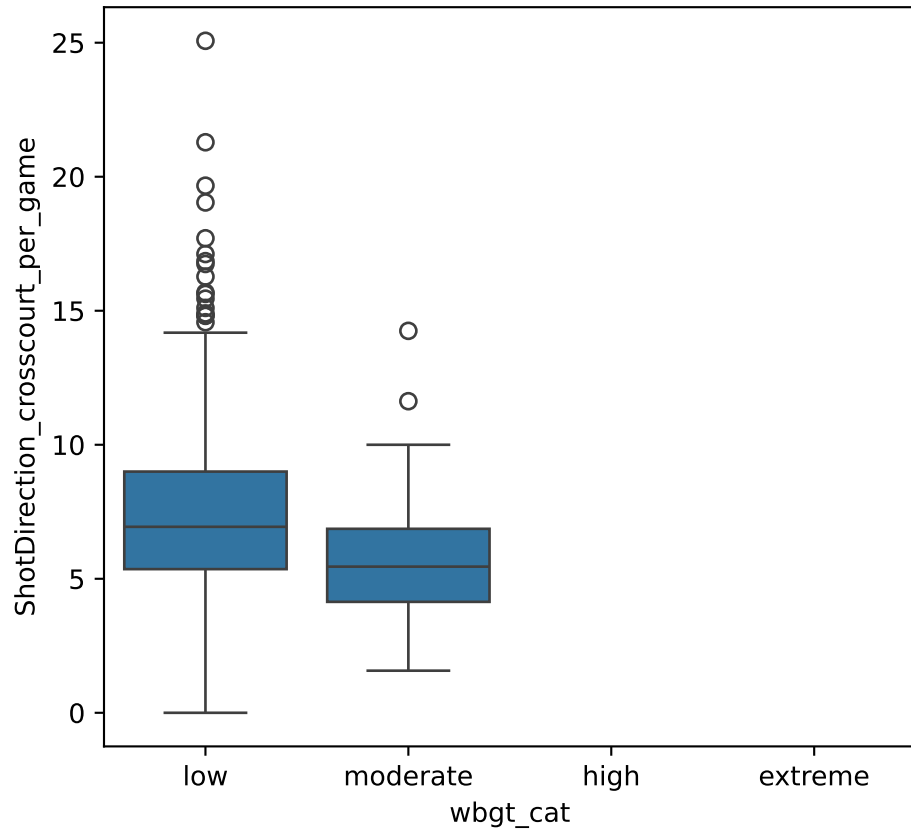


Dunn Post-hoc (p-değerleri)  
ServeInfluence\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.102 | 0.003 | 0.144    |
| high     | 0.102   | 1.0   | 1.0   | 1.0      |
| low      | 0.003   | 1.0   | 1.0   | 1.0      |
| moderate | 0.144   | 1.0   | 1.0   | 1.0      |



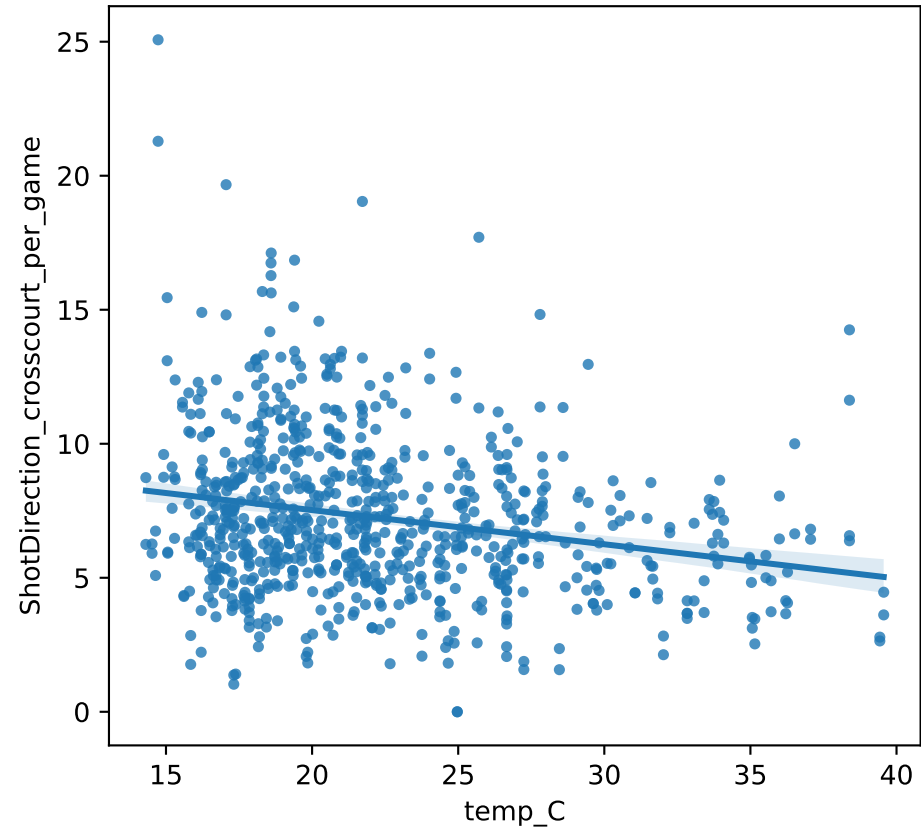
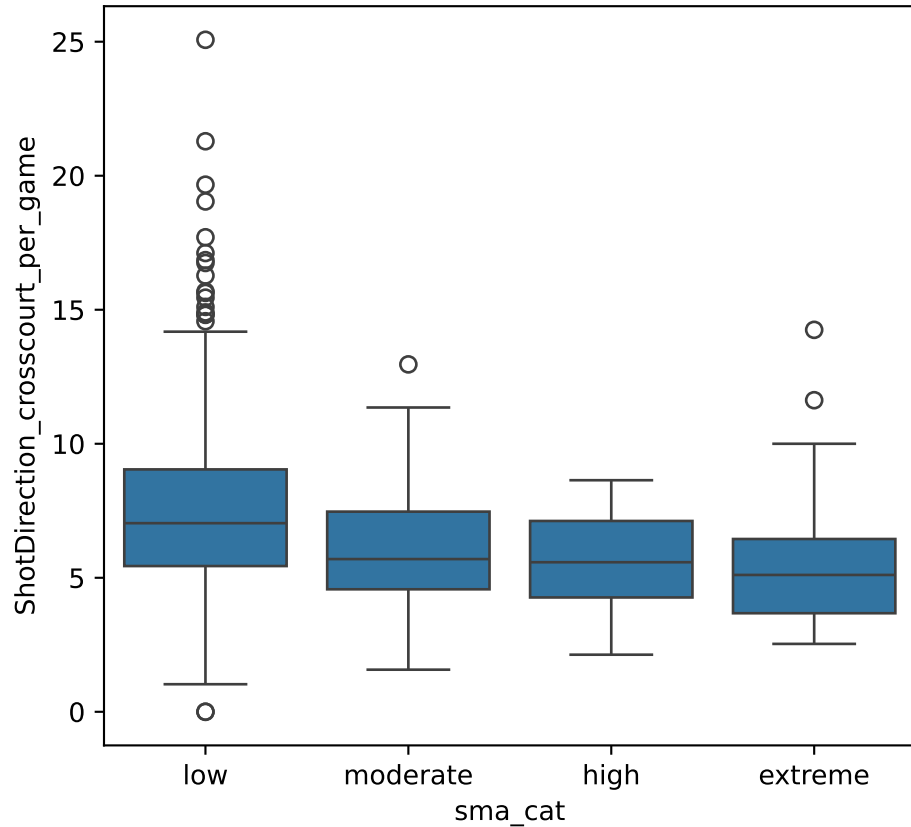
ShotDirection\_crosscourt\_per\_game - wbgt\_cat  
Kruskal p=3.63e-06, Jonckheere p=NA, Corr p=6.1962559923127536e-09  
ShotDirection\_crosscourt\_per\_game by wbgt\_cat ShotDirection\_crosscourt\_per\_game vs wbgt (Spearman r=-0.21, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_crosscourt\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

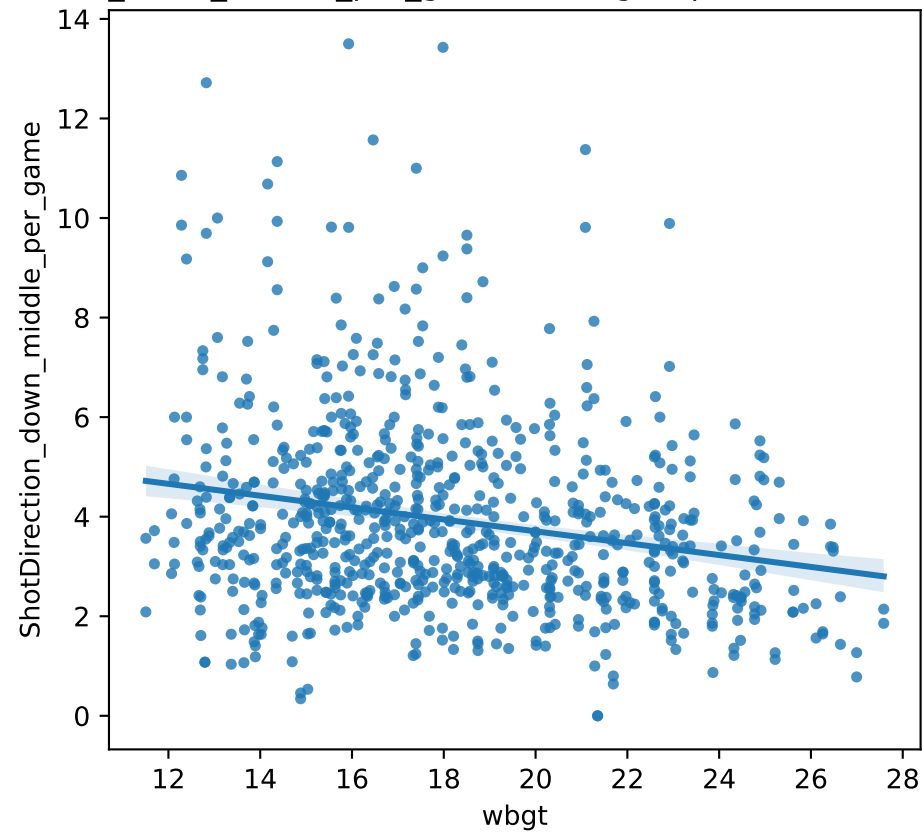
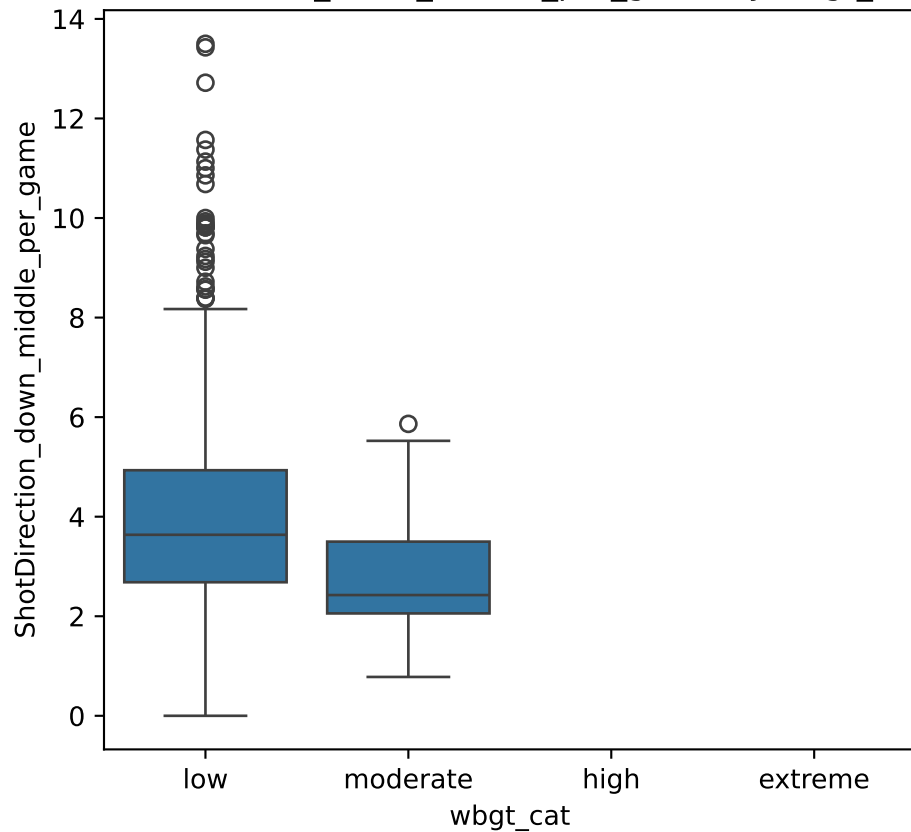
ShotDirection\_crosscourt\_per\_game - sma\_cat  
Kruskal p=3.5e-07, Jonckheere p=NA, Corr p=2.2205350569264214e-08  
ShotDirection\_crosscourt\_per\_game by sma\_cat  
ShotDirection\_crosscourt\_per\_game vs temp\_C (Spearman r=-0.20, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_crosscourt\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.002 | 1.0      |
| low      | 0.0     | 0.002 | 1.0   | 0.052    |
| moderate | 1.0     | 1.0   | 0.052 | 1.0      |

ShotDirection\_down\_middle\_per\_game - wbgt\_cat  
Kruskal p=2.31e-07, Jonckheere p=NA, Corr p=3.0084098677792322e-09  
ShotDirection\_down\_middle\_per\_game by wbgt\_cat  
ShotDirection\_down\_middle\_per\_game vs wbgt (Spearman r=-0.21, p=0.000)



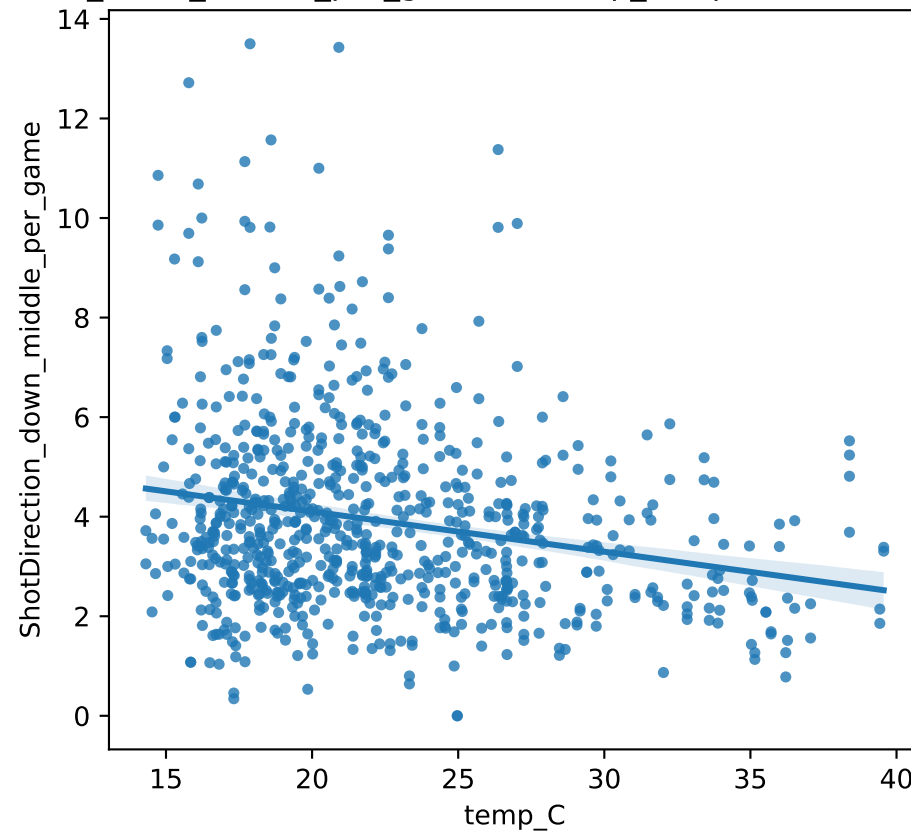
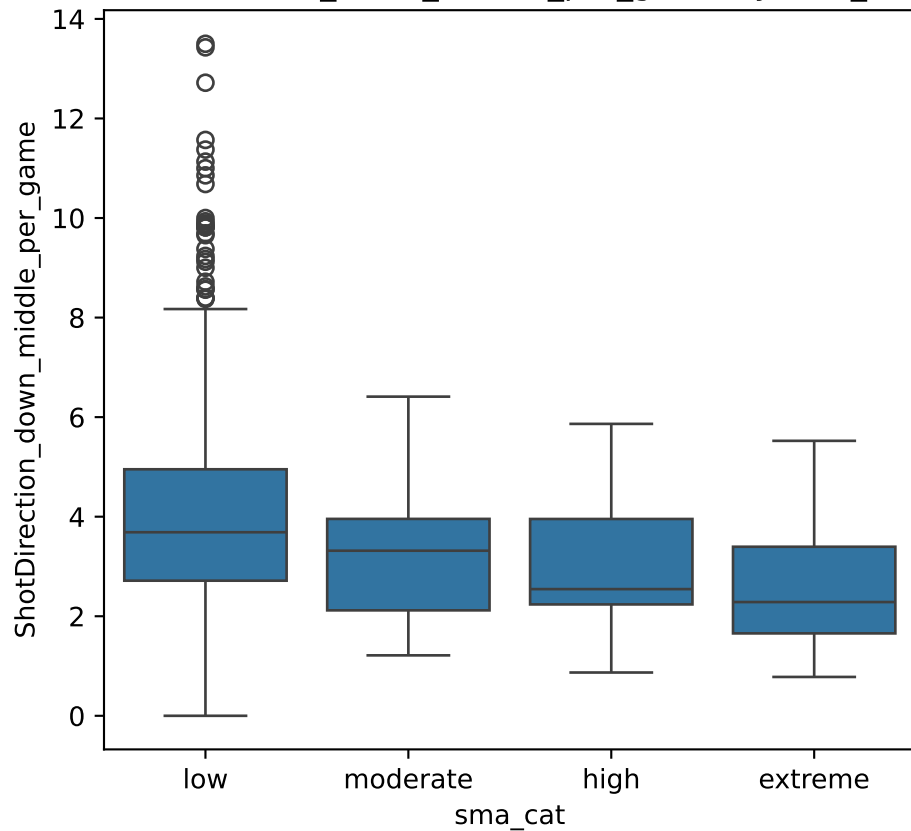
Dunn Post-hoc (p-değerleri)  
ShotDirection\_down\_middle\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

ShotDirection\_down\_middle\_per\_game - sma\_cat  
Kruskal p=9.9e-08, Jonckheere p=NA, Corr p=2.7084835278662687e-08

ShotDirection\_down\_middle\_per\_game by sma\_cat

ShotDirection\_down\_middle\_per\_game vs temp\_C (Spearman r=-0.20, p=0.000)

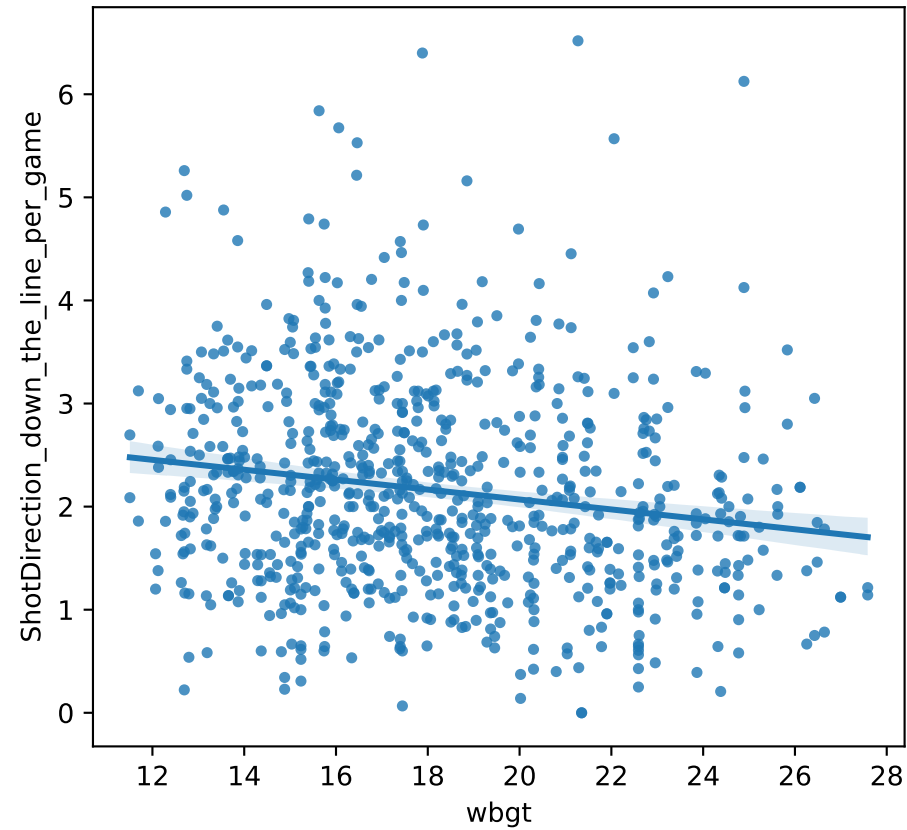
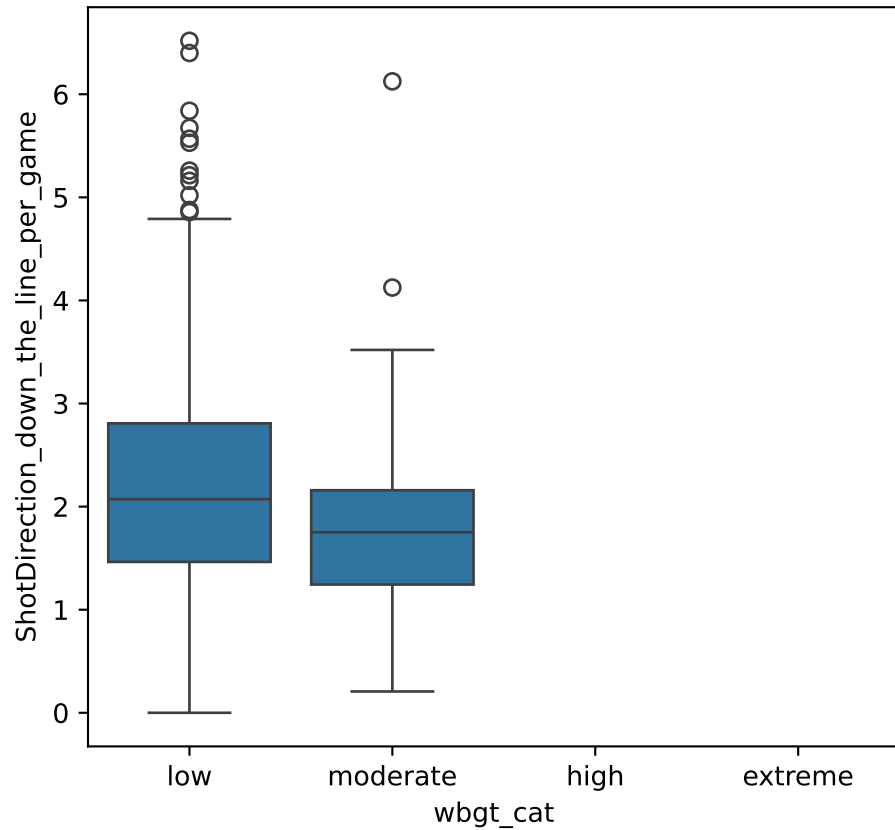


Dunn Post-hoc (p-değerleri)  
ShotDirection\_down\_middle\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 0.316    |
| high     | 1.0     | 1.0   | 0.007 | 1.0      |
| low      | 0.0     | 0.007 | 1.0   | 0.137    |
| moderate | 0.316   | 1.0   | 0.137 | 1.0      |



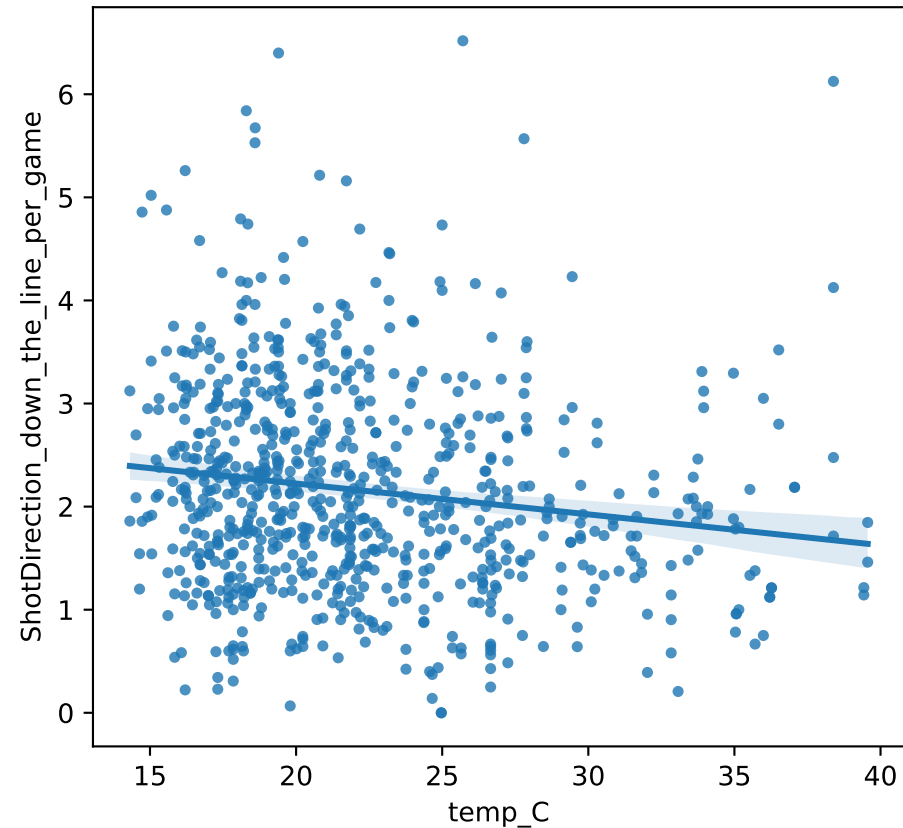
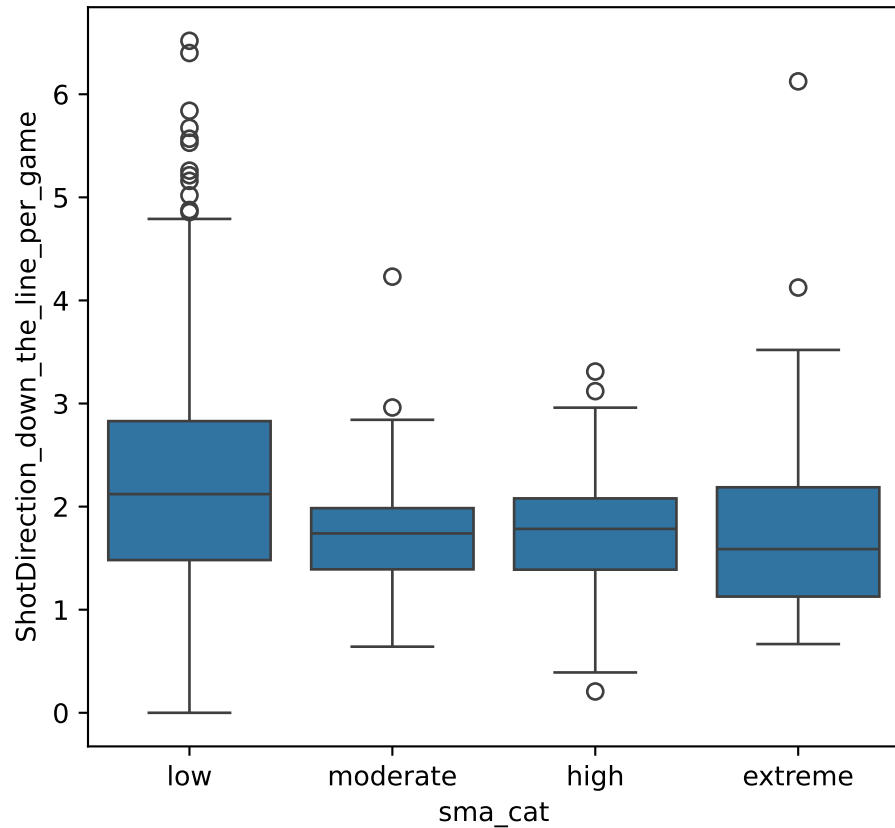
ShotDirection\_down\_the\_line\_per\_game - wbgt\_cat  
Kruskal p=0.00497, Jonckheere p=NA, Corr p=3.852380533352781e-07  
ShotDirection\_down\_the\_line\_per\_game by wbgt\_cat  
ShotDirection\_down\_the\_line\_per\_game vs wbgt (Spearman r=-0.18, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_down\_the\_line\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.005    |
| moderate | 0.005 | 1.0      |

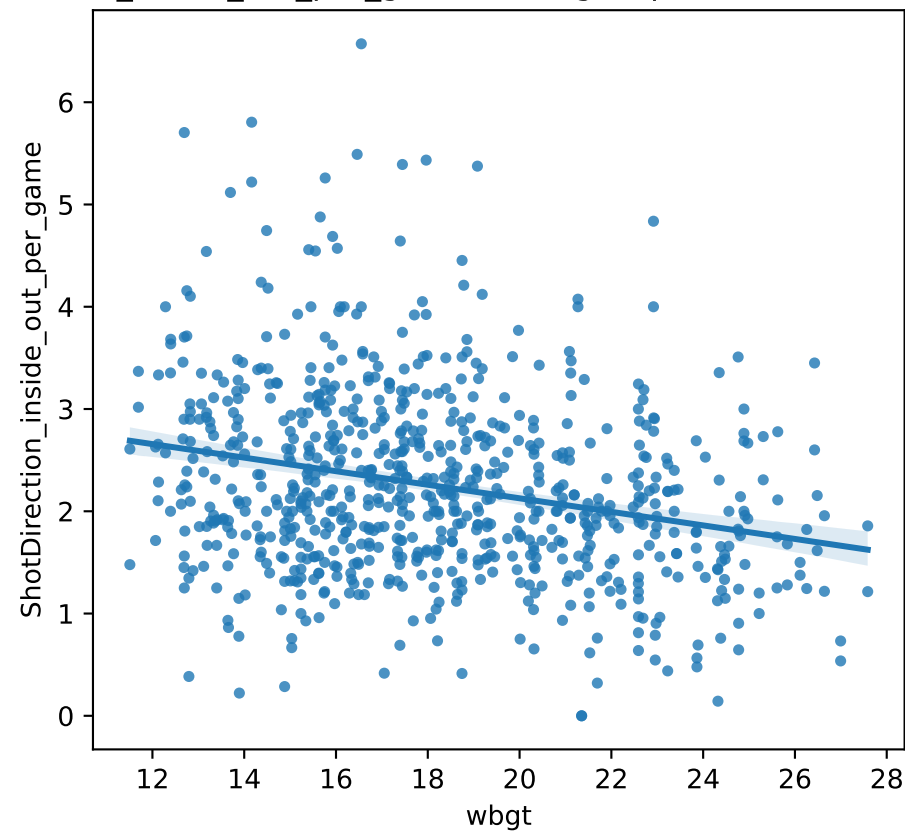
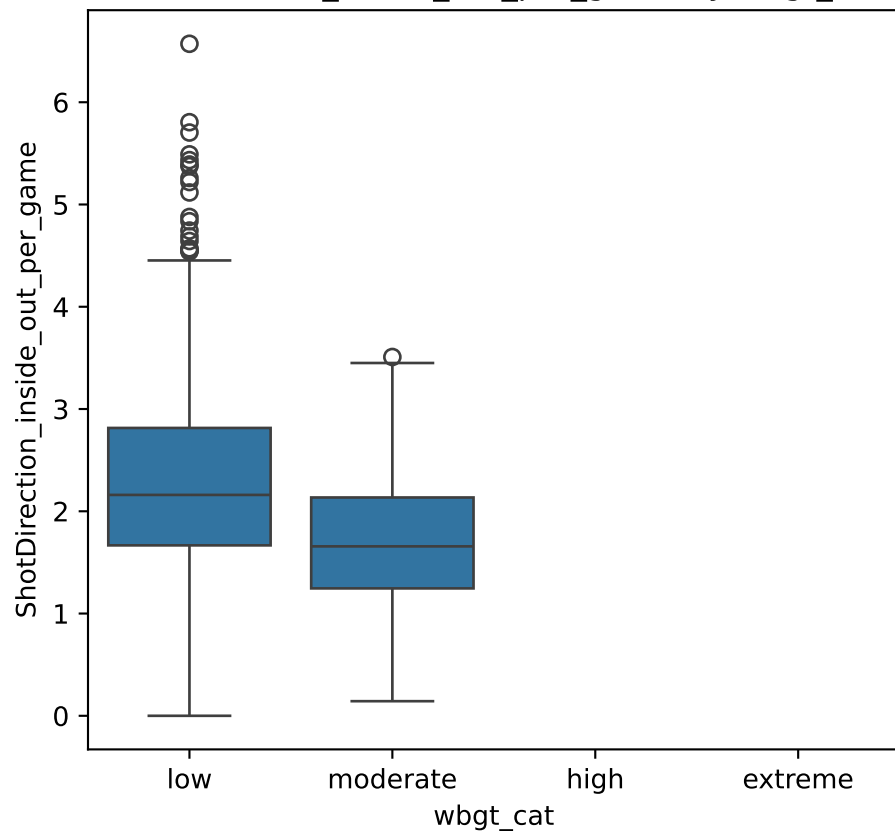
ShotDirection\_down\_the\_line\_per\_game - sma\_cat  
Kruskal p=0.0011, Jonckheere p=NA, Corr p=1.4647967608006594e-06  
ShotDirection\_down\_the\_line\_per\_game by sma\_cat  
ShotDirection\_down\_the\_line\_per\_game vs temp\_C (Spearman r=-0.17, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_down\_the\_line\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.128 | 1.0      |
| high     | 1.0     | 1.0   | 0.059 | 1.0      |
| low      | 0.128   | 0.059 | 1.0   | 0.109    |
| moderate | 1.0     | 1.0   | 0.109 | 1.0      |

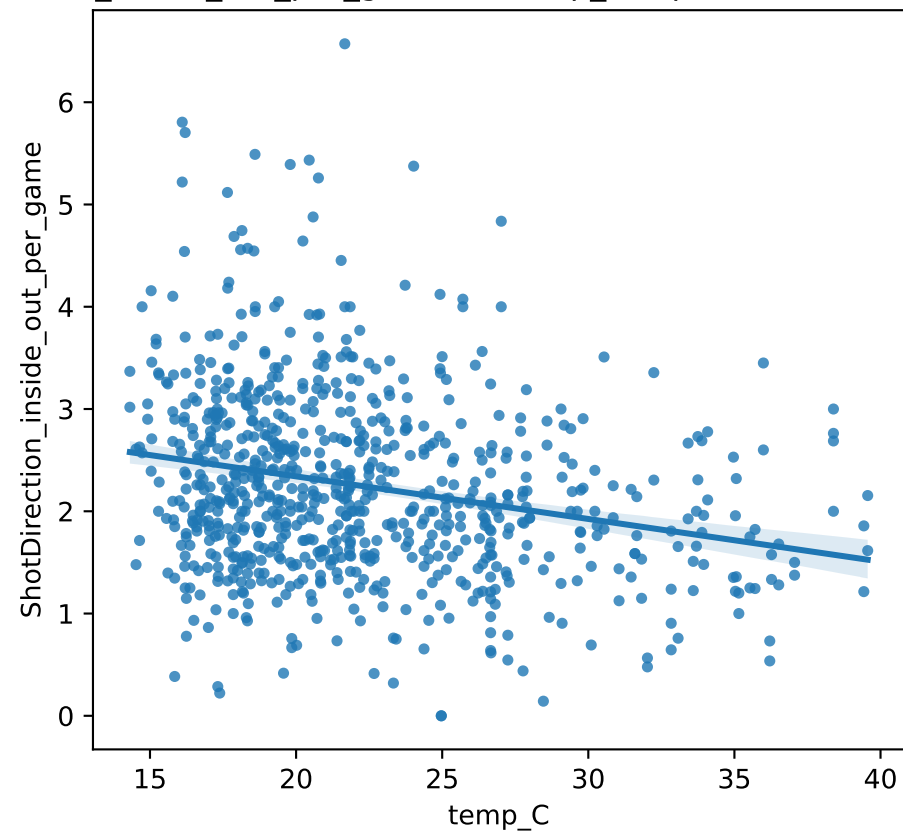
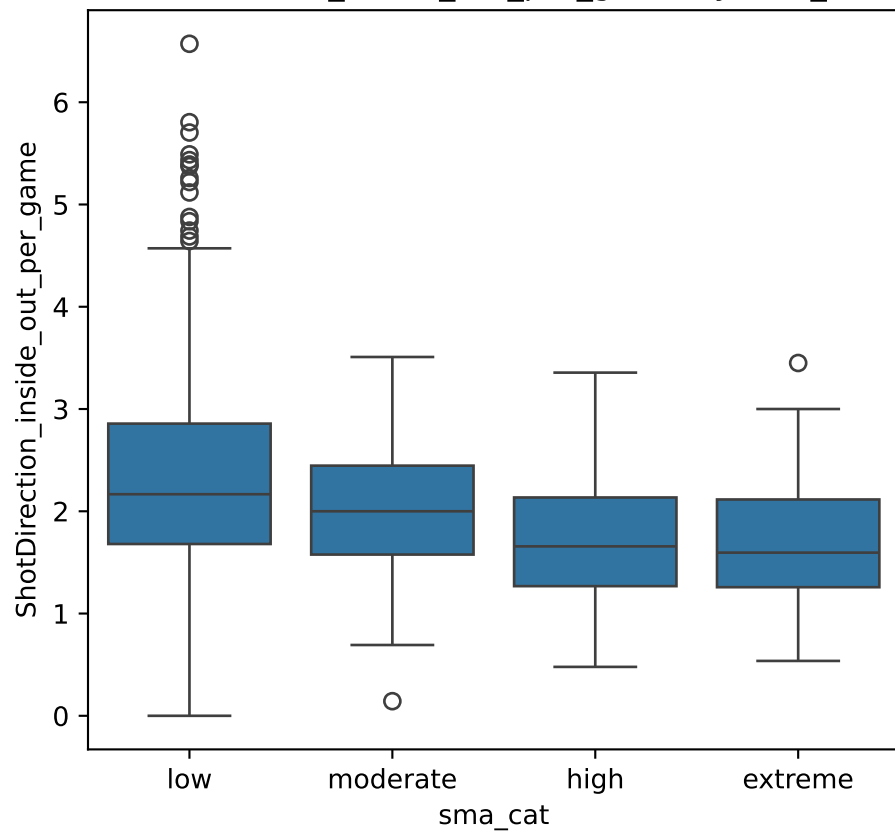
ShotDirection\_inside\_out\_per\_game - wbgc\_cat  
Kruskal p=3.79e-06, Jonckheere p=NA, Corr p=7.805741821924515e-12  
ShotDirection\_inside\_out\_per\_game by wbgc\_cat ShotDirection\_inside\_out\_per\_game vs wbgc (Spearman r=-0.24, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_inside\_out\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

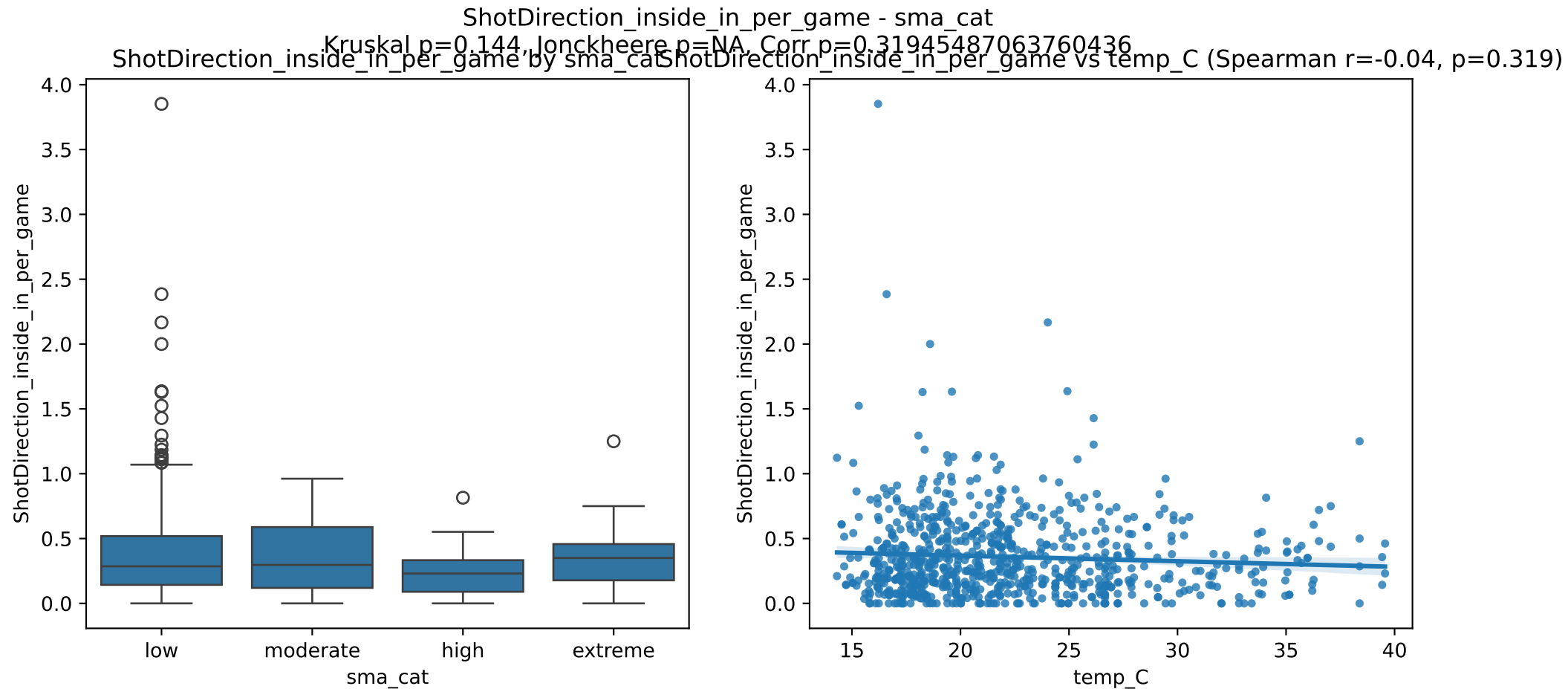
ShotDirection\_inside\_out\_per\_game - sma\_cat  
Kruskal p=2.67e-06, Jonckheere p=NA, Corr p=3.947846598381507e-11  
ShotDirection\_inside\_out\_per\_game by sma\_cat ShotDirection\_inside\_out\_per\_game vs temp\_C (Spearman r=-0.23, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_inside\_out\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.002 | 0.733    |
| high     | 1.0     | 1.0   | 0.001 | 0.728    |
| low      | 0.002   | 0.001 | 1.0   | 0.554    |
| moderate | 0.733   | 0.728 | 0.554 | 1.0      |

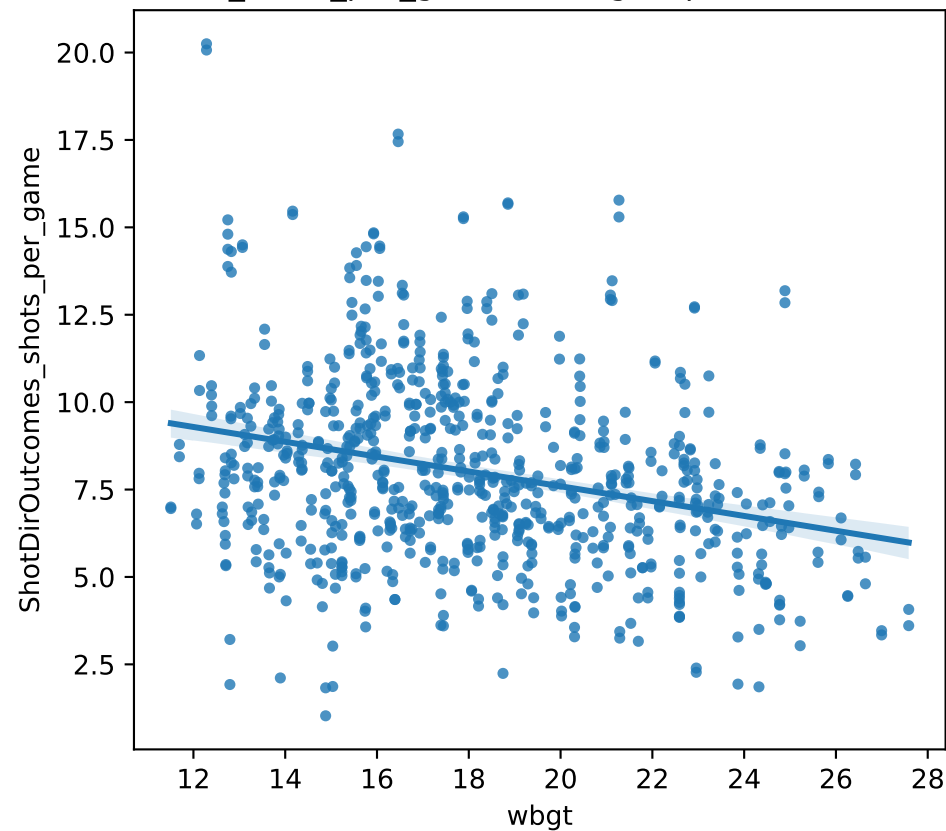
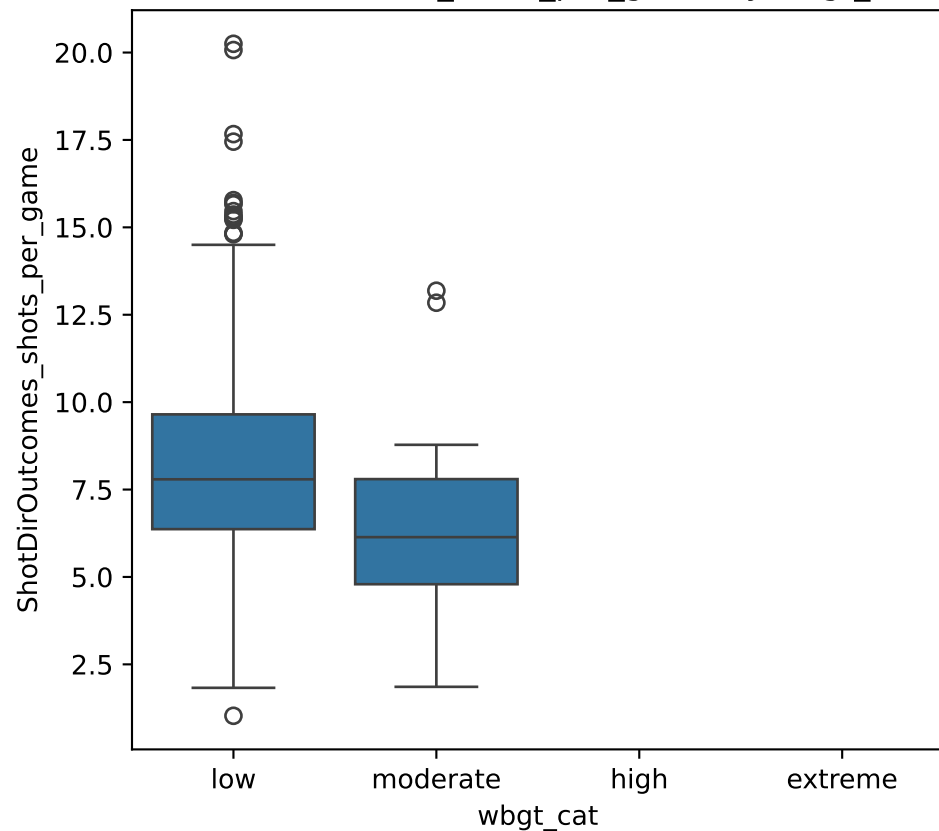




Dunn Post-hoc (p-değerleri)  
ShotDirection\_inside\_in\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.327 | 1.0   | 1.0      |
| high     | 0.327   | 1.0   | 0.146 | 0.54     |
| low      | 1.0     | 0.146 | 1.0   | 1.0      |
| moderate | 1.0     | 0.54  | 1.0   | 1.0      |

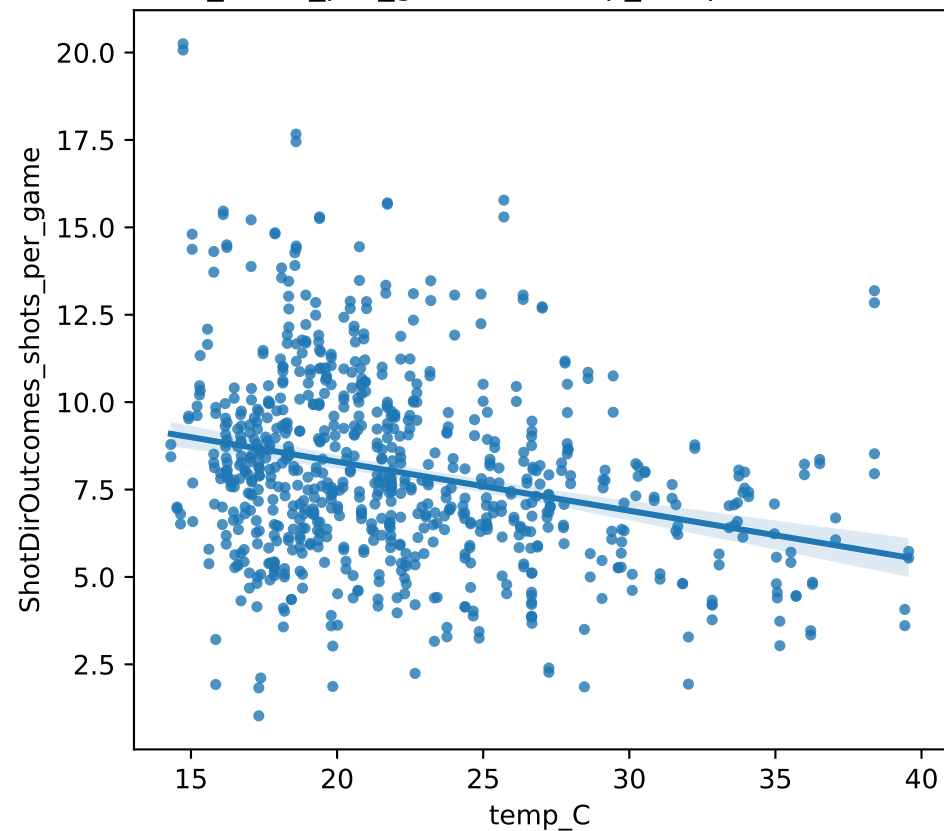
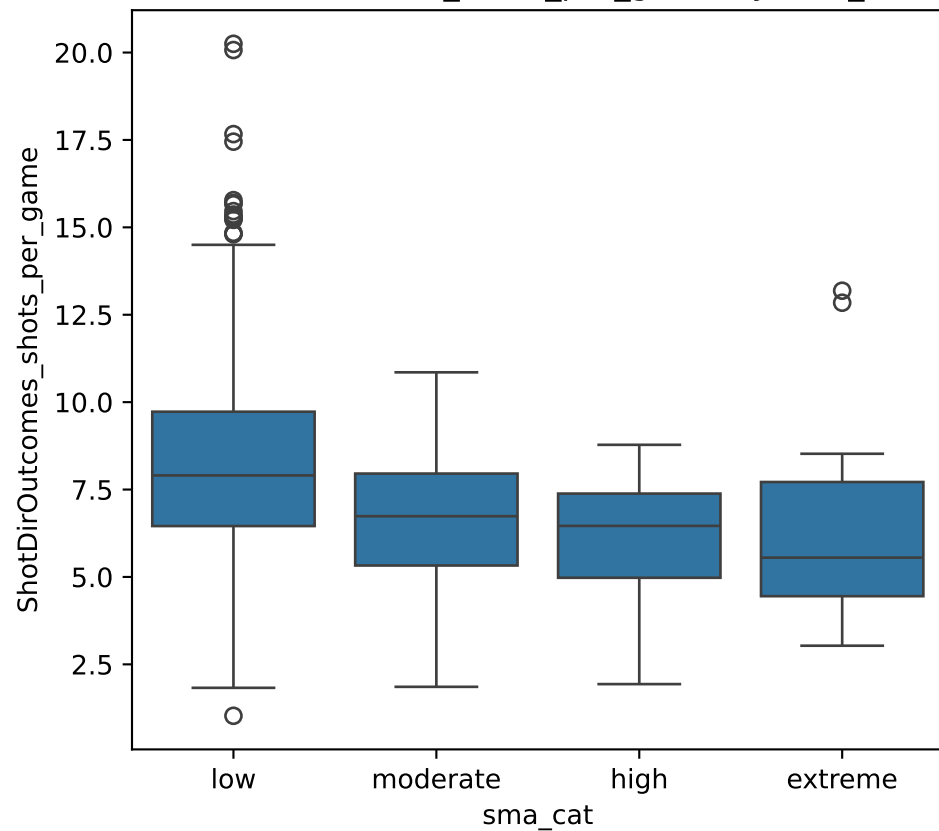
ShotDirOutcomes\_shots\_per\_game - wbgt\_cat  
Kruskal p=2.29e-08, Jonckheere p=NA, Corr p=1.2685229790041538e-14  
ShotDirOutcomes\_shots\_per\_game by wbgt\_cat ShotDirOutcomes\_shots\_per\_game vs wbgt (Spearman r=-0.27, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

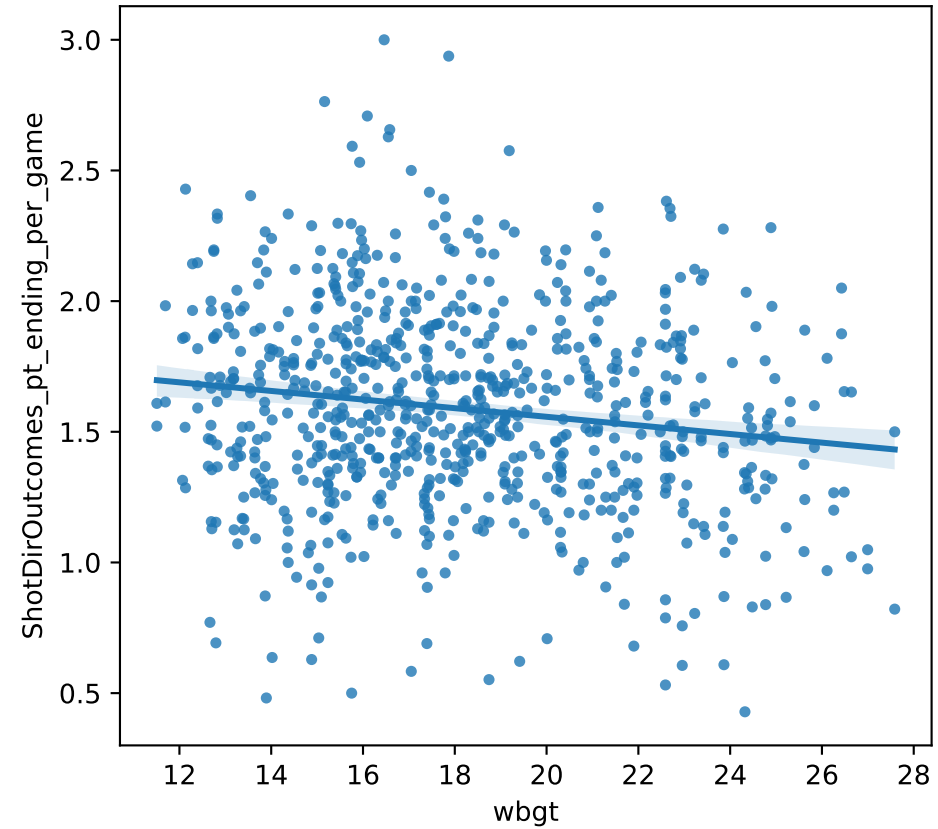
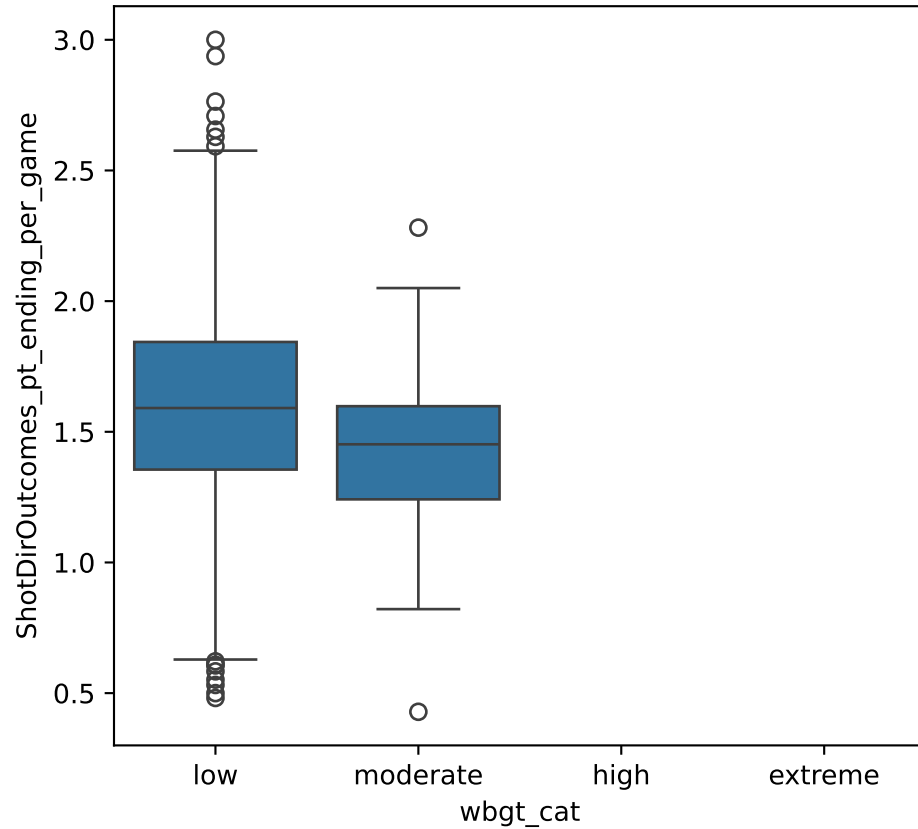
ShotDirOutcomes\_shots\_per\_game - sma\_cat  
Kruskal p=3.13e-10, Jonckheere p=NA, Corr p=2.368811346247062e-13  
ShotDirOutcomes\_shots\_per\_game by sma\_cat  
ShotDirOutcomes\_shots\_per\_game vs temp\_C (Spearman r=-0.26, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.0   | 1.0      |
| high     | 1.0     | 1.0  | 0.0   | 1.0      |
| low      | 0.0     | 0.0  | 1.0   | 0.011    |
| moderate | 1.0     | 1.0  | 0.011 | 1.0      |

ShotDirOutcomes\_pt\_ending\_per\_game - wbgc\_cat  
Kruskal p=0.000216, Jonckheere p=NA, Corr p=0.0002063978963392064  
ShotDirOutcomes\_pt\_ending\_per\_game by wbgc\_cat  
ShotDirOutcomes\_pt\_ending\_per\_game vs wbgc (Spearman r=-0.13, p=0.000)

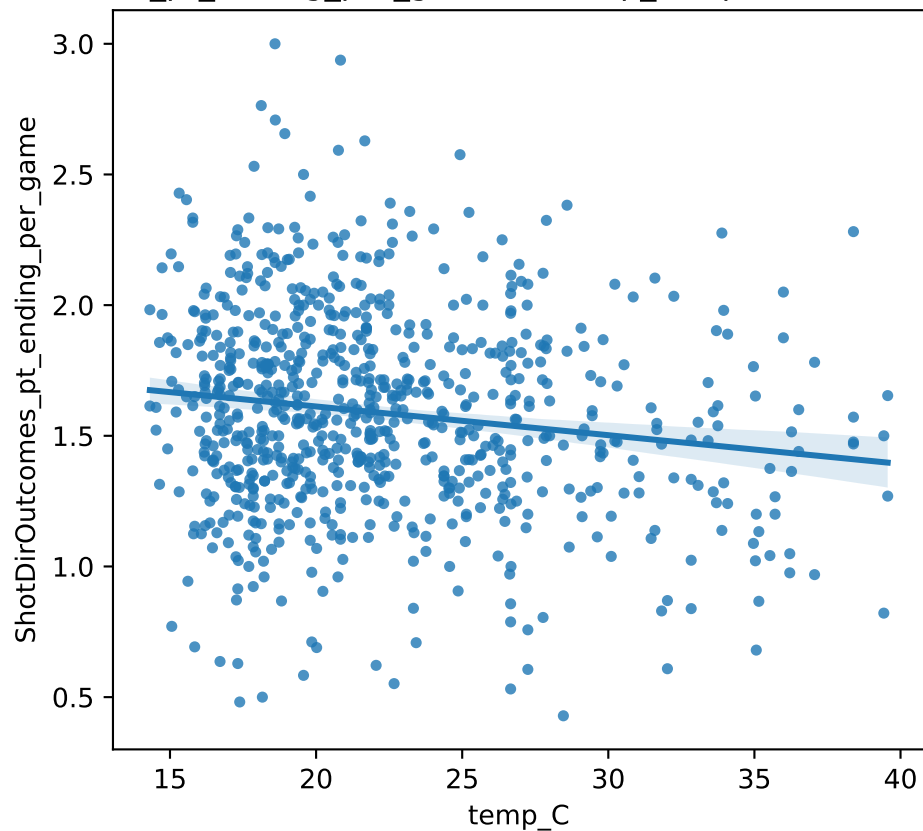
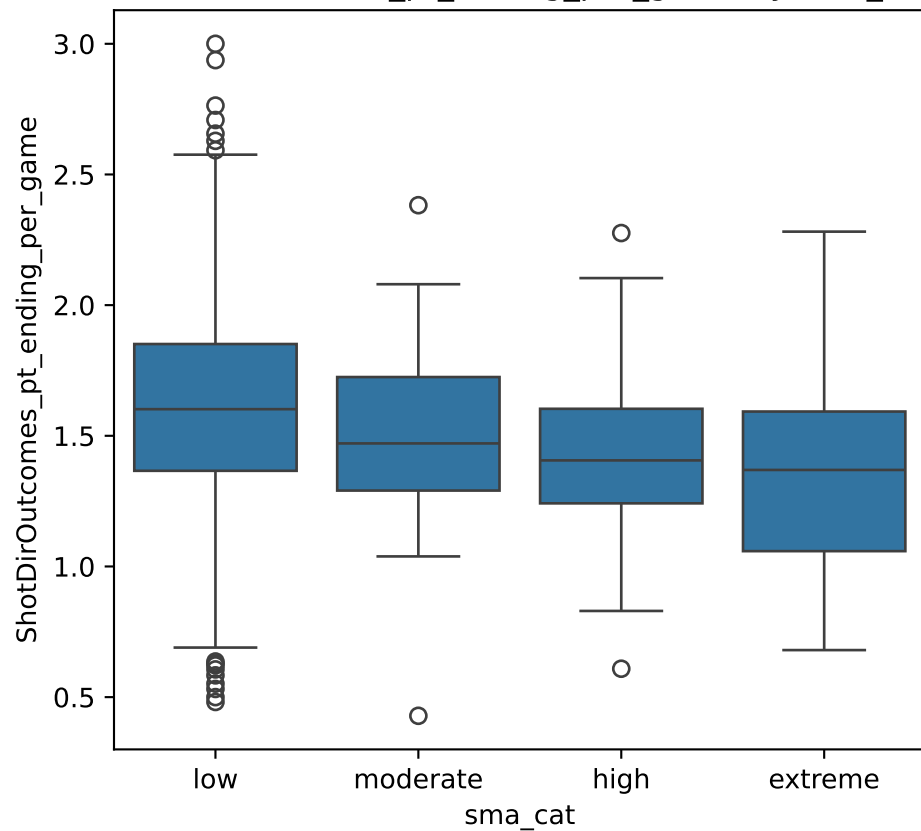


Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_pt\_ending\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



ShotDirOutcomes\_pt\_ending\_per\_game - sma\_cat  
Kruskal p=0.000147, Jonckheere p=NA, Corr p=0.0007877499741726311  
ShotDirOutcomes\_pt\_ending\_per\_game by sma\_cat  
ShotDirOutcomes\_pt\_ending\_per\_game vs temp\_C (Spearman r=-0.12, p=0.001)

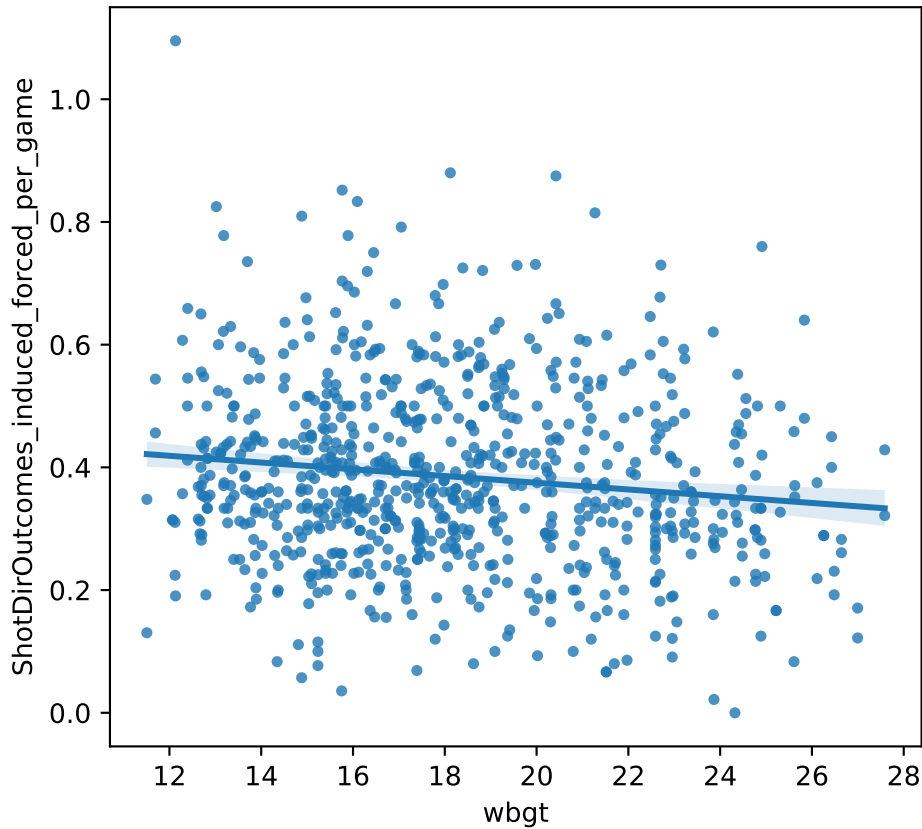


Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_pt\_ending\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.004 | 0.944    |
| high     | 1.0     | 1.0   | 0.038 | 1.0      |
| low      | 0.004   | 0.038 | 1.0   | 0.617    |
| moderate | 0.944   | 1.0   | 0.617 | 1.0      |

Kruskal p=0.00497, Jonckheere p=NA, Corr p=0.0011943331512815631

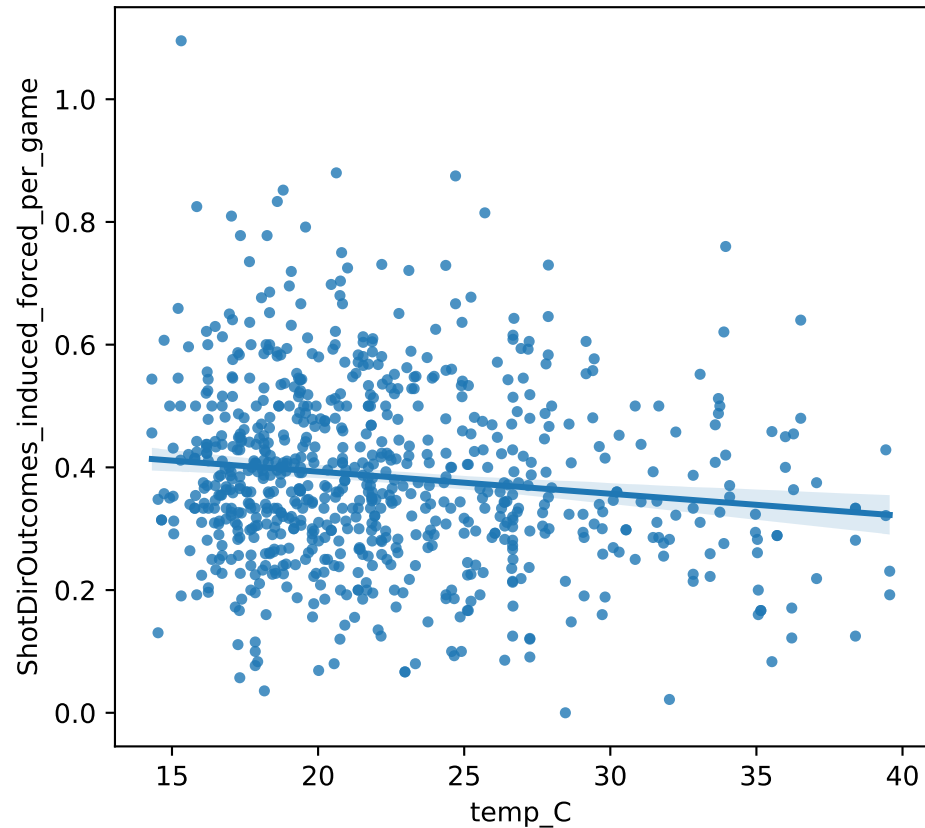
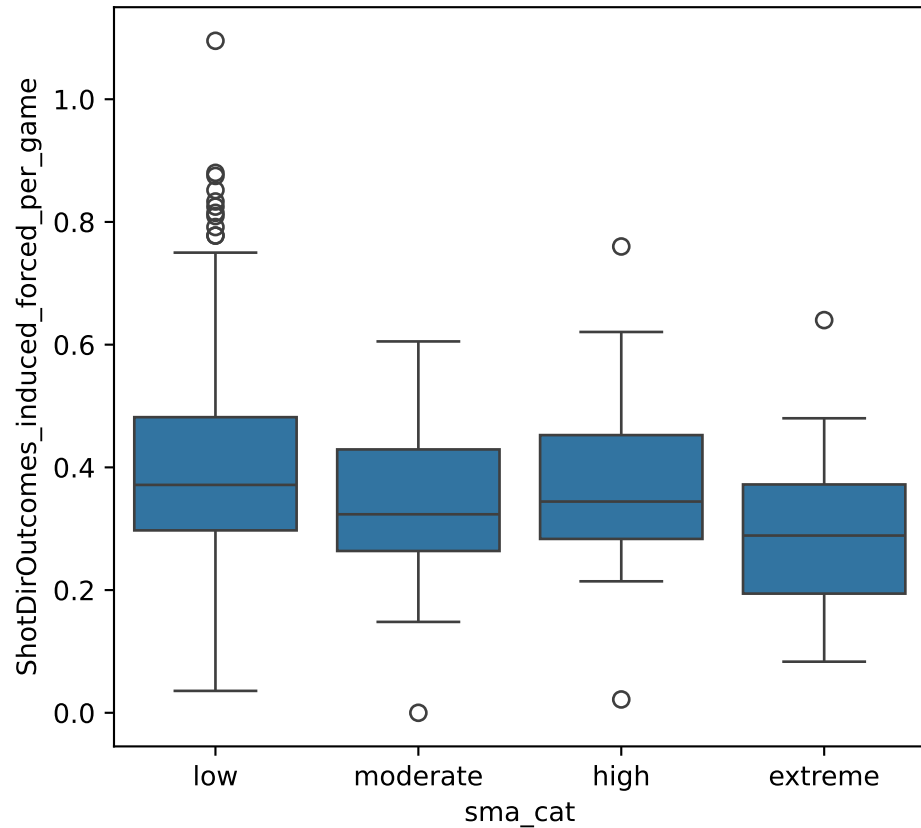
duced\_forced\_per\_game by  $\beta_{\text{sw}} = 0.0001$  and  $\beta_{\text{sw}} = 0.0001$  outcomes\_induced\_forced\_per\_game v



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_induced\_forced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.005    |
| moderate | 0.005 | 1.0      |

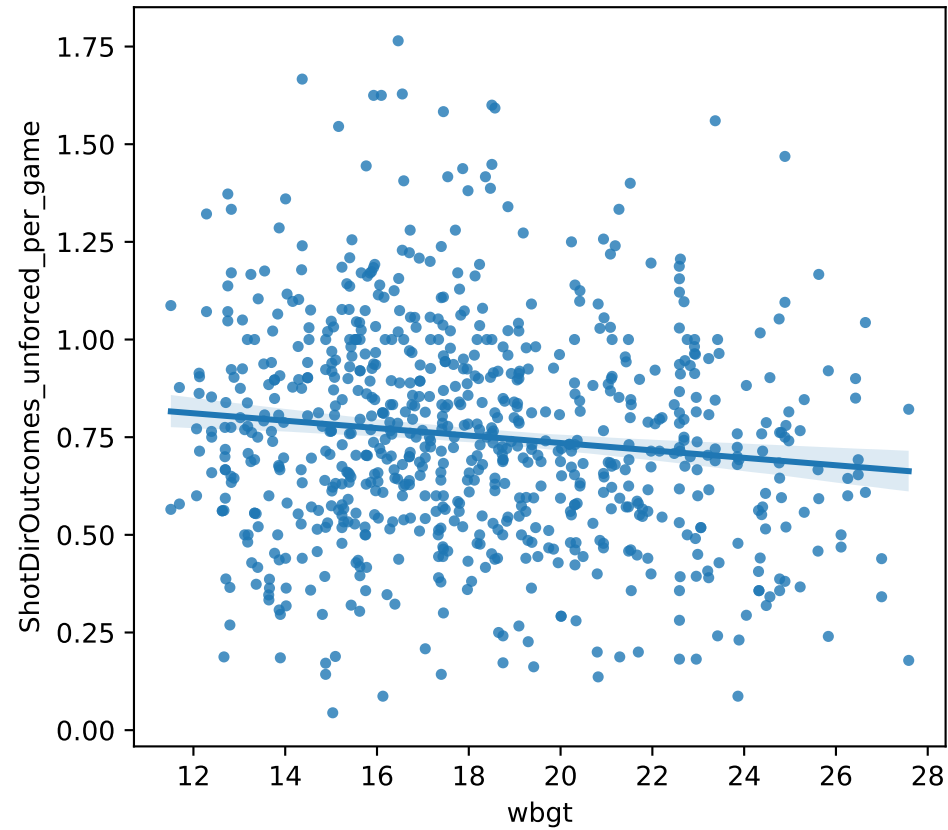
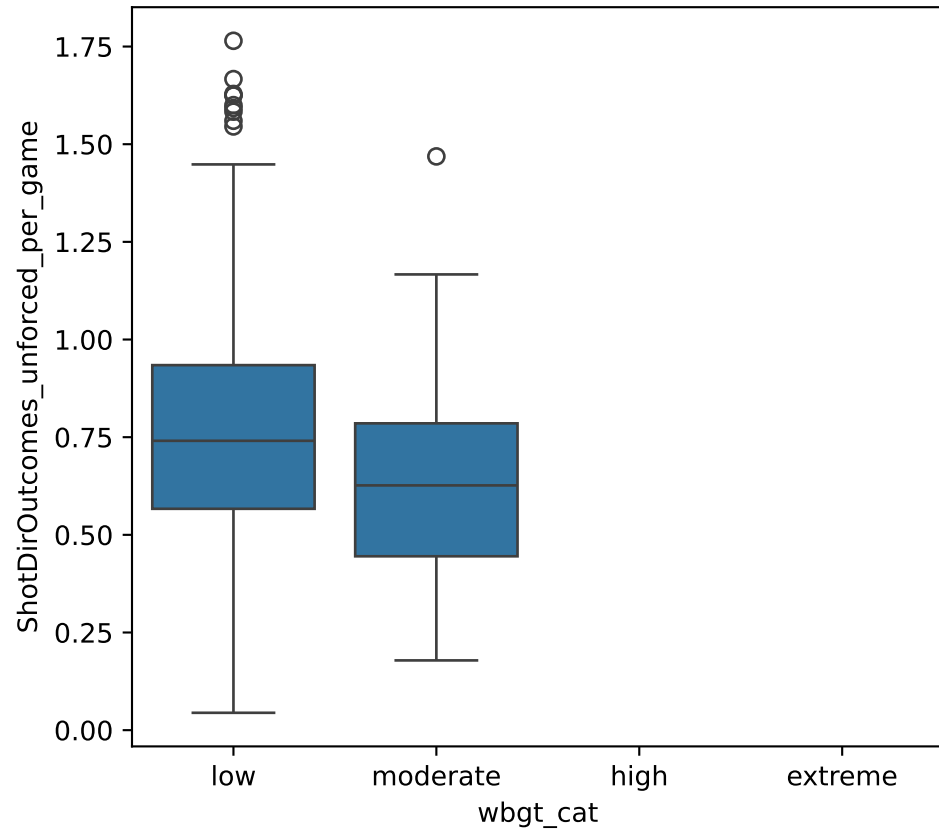
ShotDirOutcomes\_induced\_forced\_per\_game - sma\_cat  
Kruskal p=0.000856, Jonckheere p=NA, Corr p=0.0022603938390464632  
ShotDirOutcomes\_induced\_forced\_per\_game by sma\_cat  
ShotDirOutcomes\_induced\_forced\_per\_game vs temp\_C (Spearman r=-0.11, p=0.0022603938390464632)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_induced\_forced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.292 | 0.002 | 1.0      |
| high     | 0.292   | 1.0   | 1.0   | 1.0      |
| low      | 0.002   | 1.0   | 1.0   | 0.28     |
| moderate | 1.0     | 1.0   | 0.28  | 1.0      |

ShotDirOutcomes\_unforced\_per\_game - wbgt\_cat  
Kruskal p=0.00142, Jonckheere p=NA, Corr p=0.001955636130783752  
ShotDirOutcomes\_unforced\_per\_game by wbgt\_cat  
ShotDirOutcomes\_unforced\_per\_game vs wbgt (Spearman r=-0.11, p=0.002)

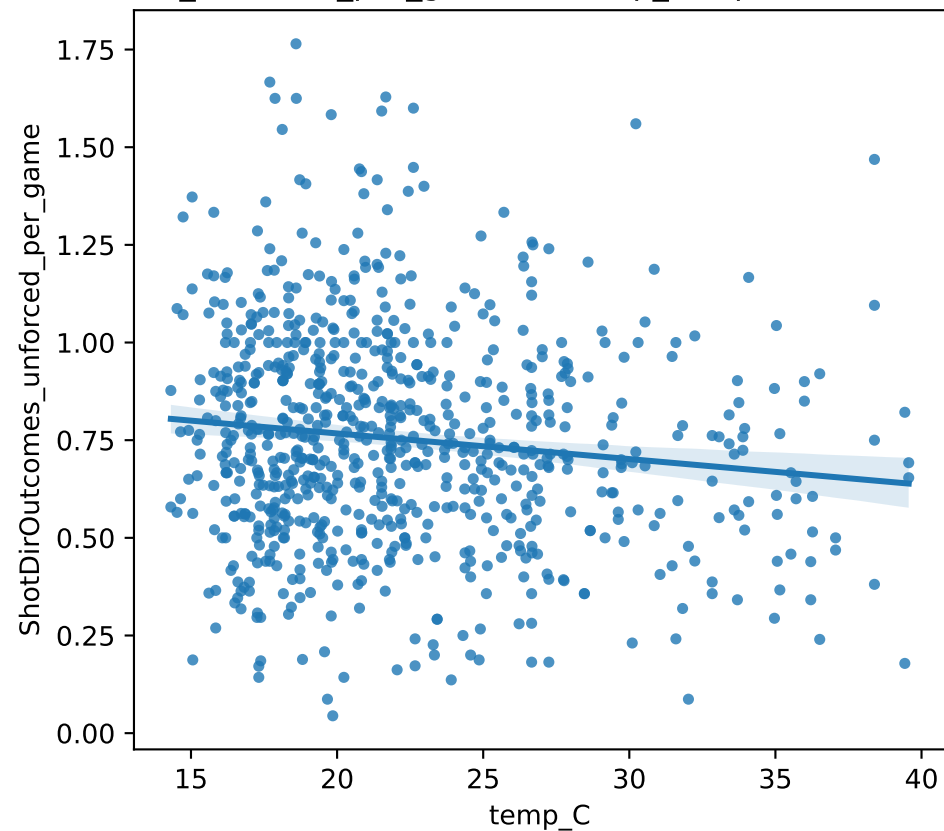
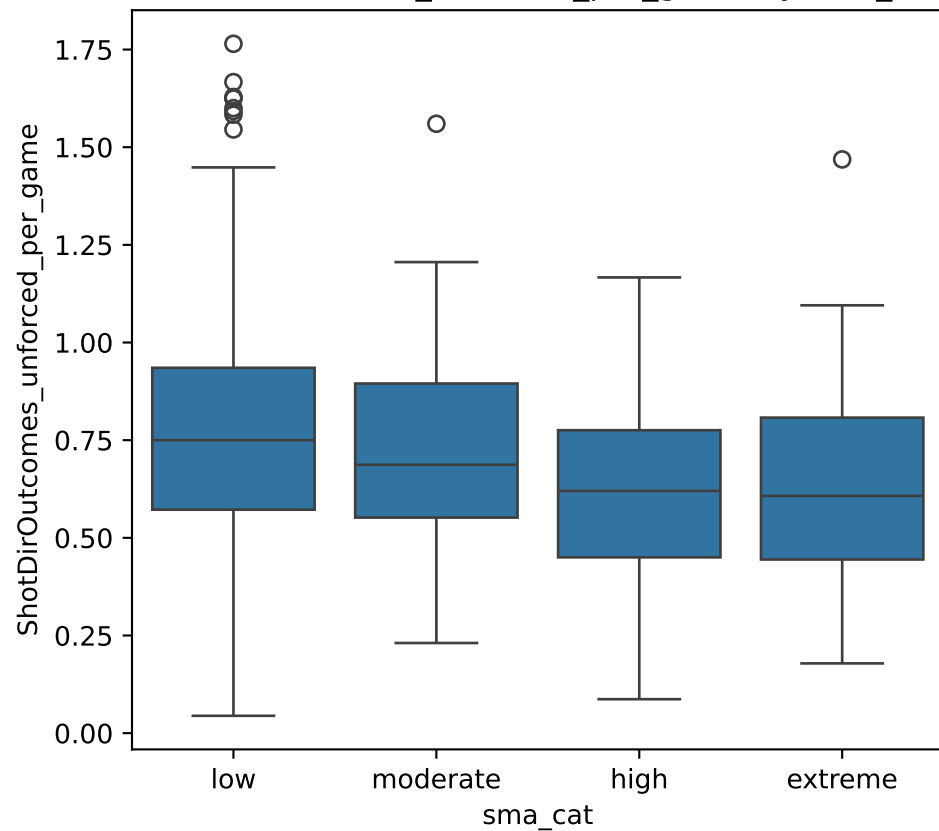


Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_unforced\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.001    |
| moderate | 0.001 | 1.0      |



ShotDirOutcomes\_unforced\_per\_game - sma\_cat  
Kruskal p=0.00366, Jonckheere p=NA, Corr p=0.004107678619362682  
ShotDirOutcomes\_unforced\_per\_game by sma\_cat  
ShotDirOutcomes\_unforced\_per\_game vs temp\_C (Spearman r=-0.10, p=0.004)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_unforced\_per\_game by sma\_cat

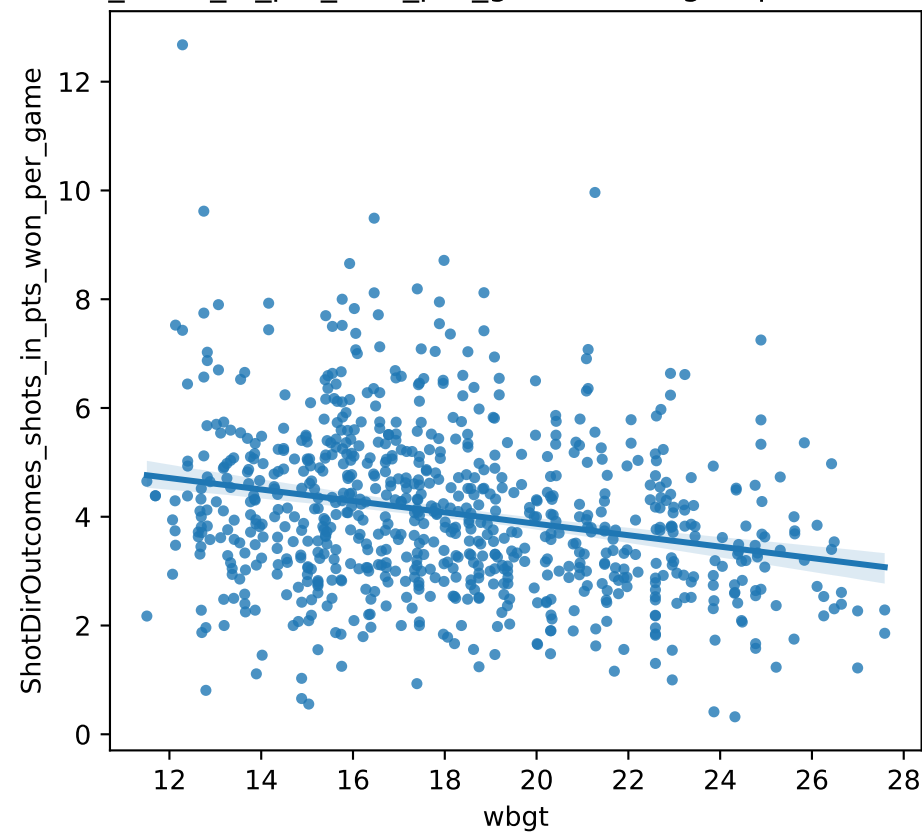
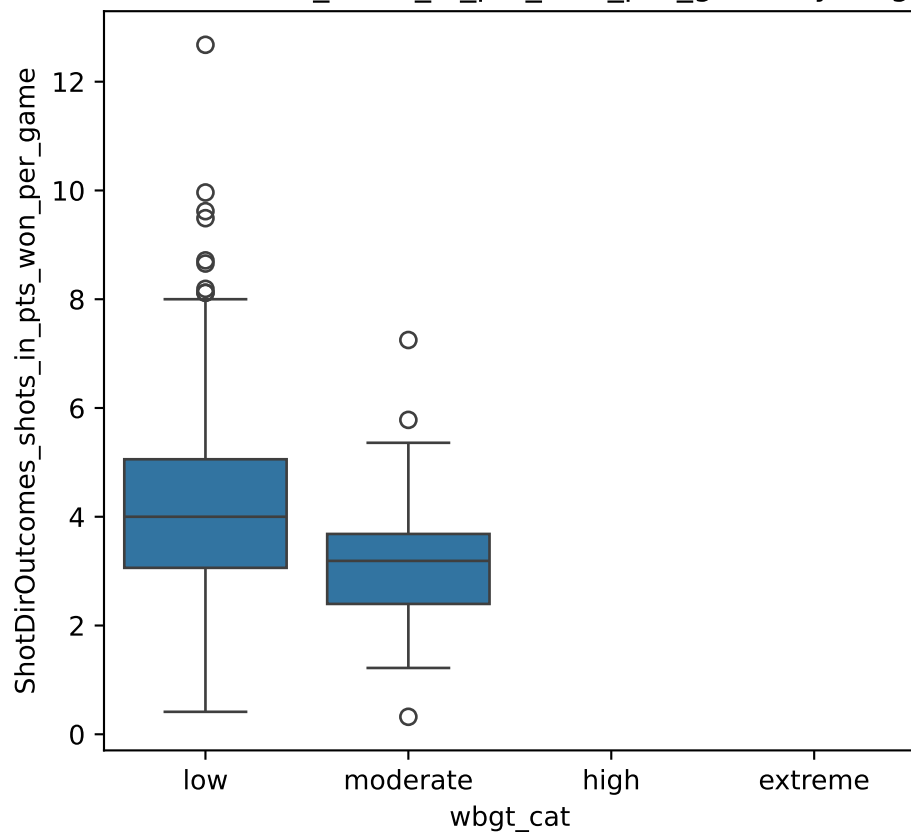
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.049 | 1.0      |
| high     | 1.0     | 1.0   | 0.061 | 1.0      |
| low      | 0.049   | 0.061 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game - wbgt\_cat

Kruskal p=7.6e-07, Jonckheere p=NA, Corr p=2.389868997993882e-11

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game by wbgt\_cat

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game vs wbgt (Spearman r=-0.24, p=0.0)



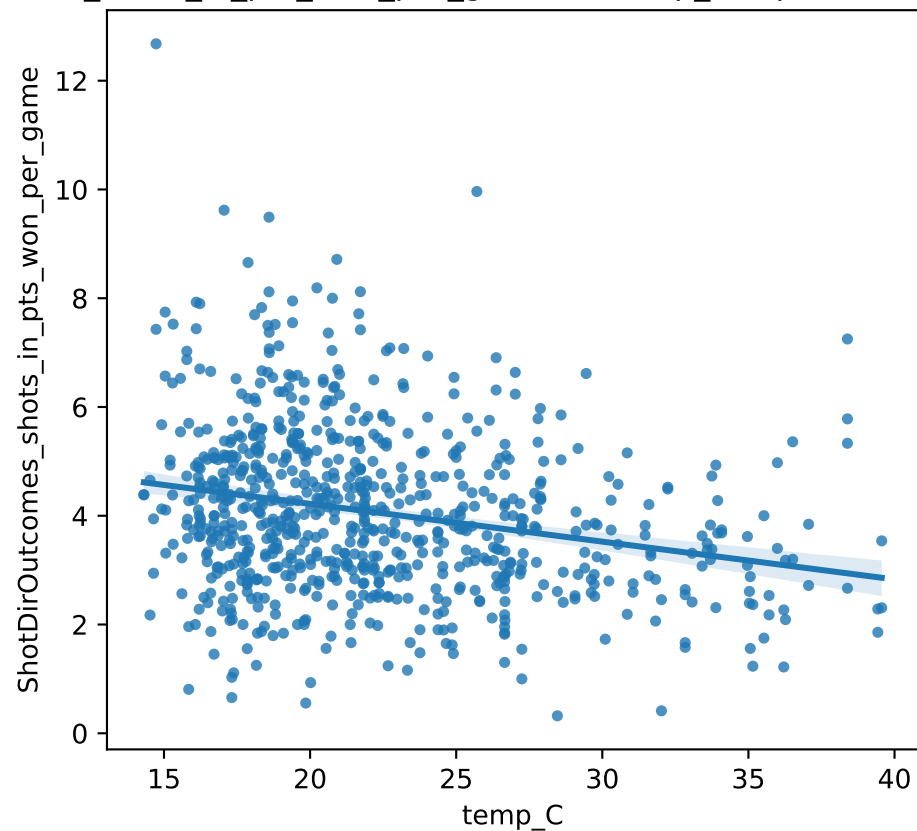
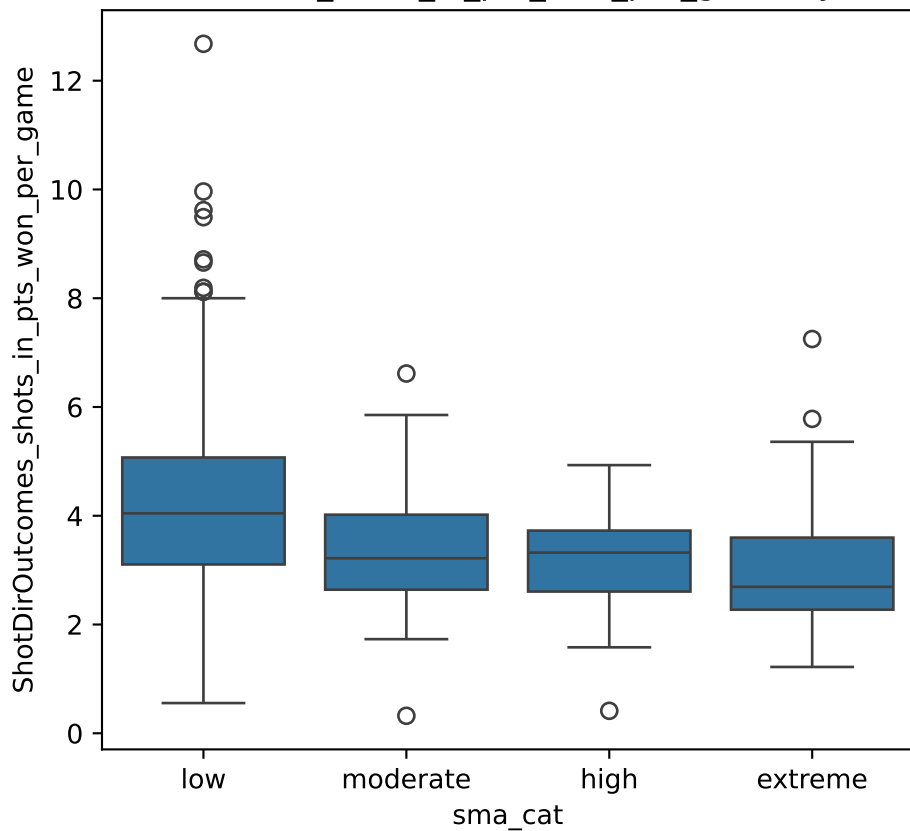
# Dunn Post-hoc (p-değerleri)

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

Kruskal p=5.57e-08, Jonckheere p=NA, Corr p=1.8031358090780264e-10

ShotDirOutcomes\_shots in pts won per game vs ShotDirOutcomes\_shots in pts won per game vs

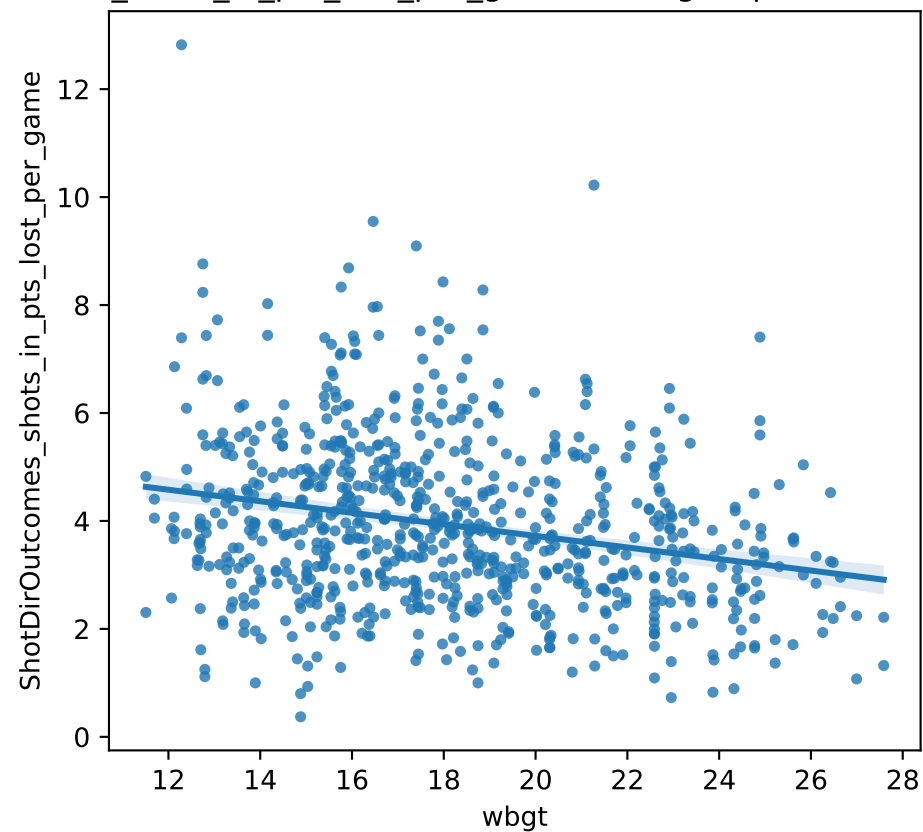
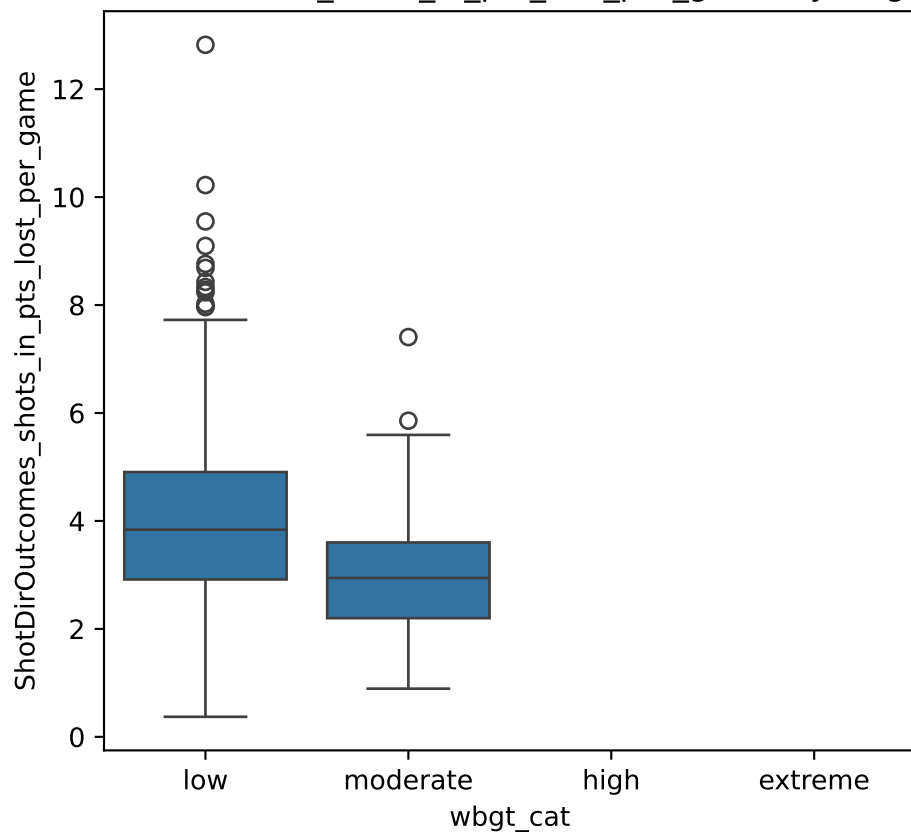


Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.001 | 1.0      |
| low      | 0.0     | 0.001 | 1.0   | 0.026    |
| moderate | 1.0     | 1.0   | 0.026 | 1.0      |

Kruskal p=6.57e-07, Jonckheere p=NA, Corr p=3.600128037606585e-11

ShotDirOutcomes shots in pts lost per game vs wgt (Spearman  $r=-0.23$ ,  $p=0.00$ )



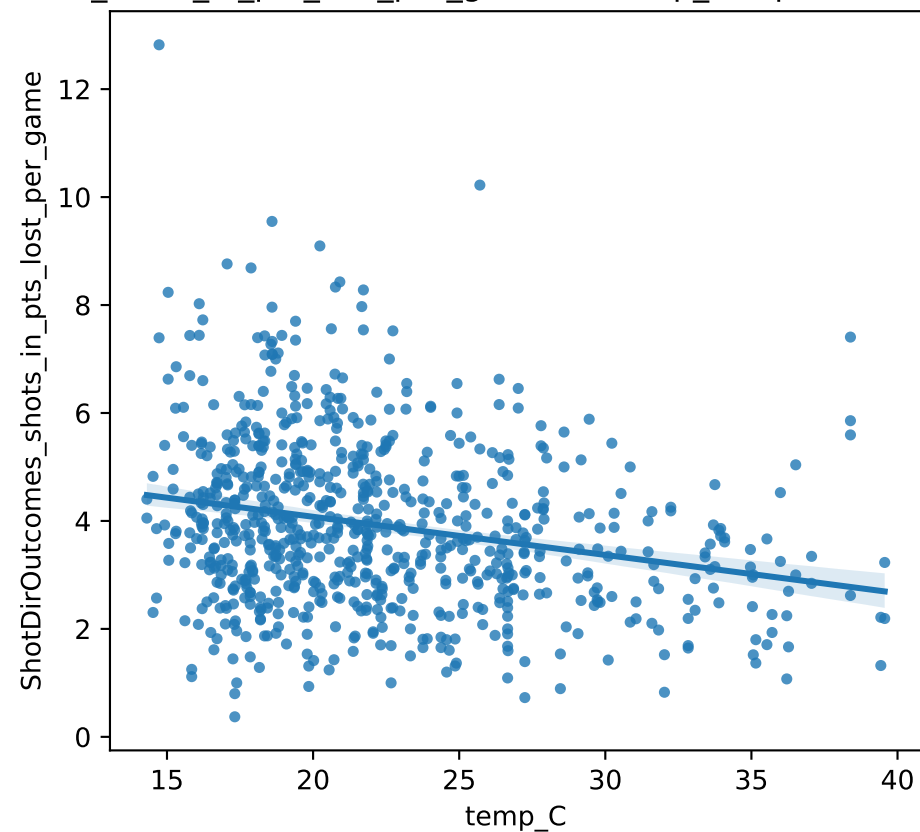
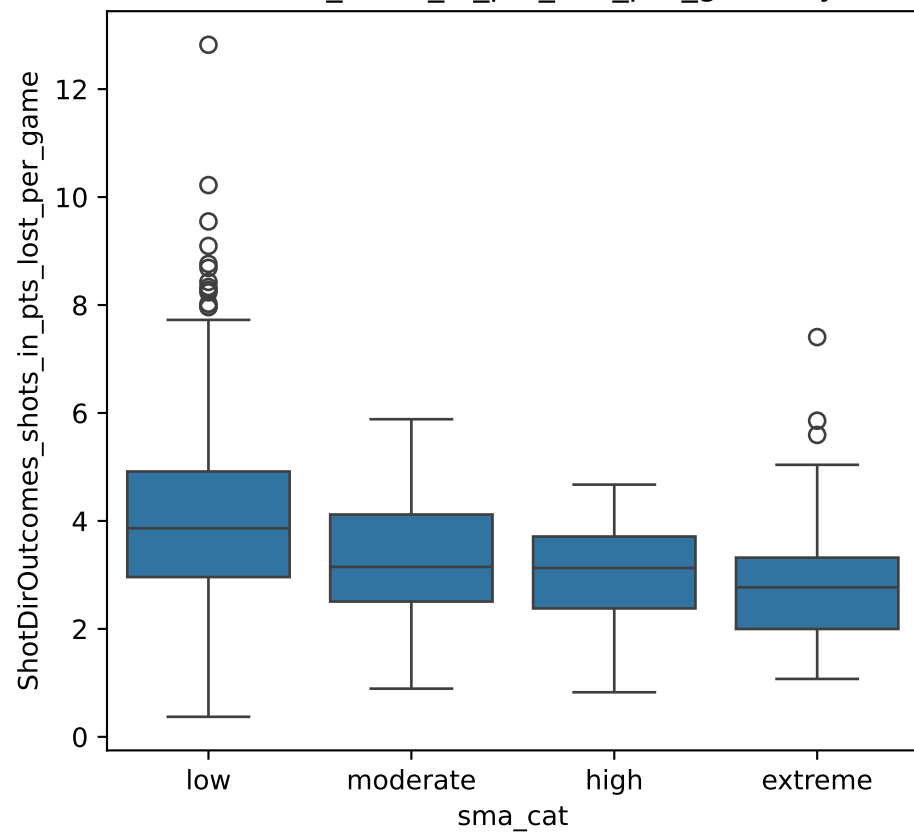
Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



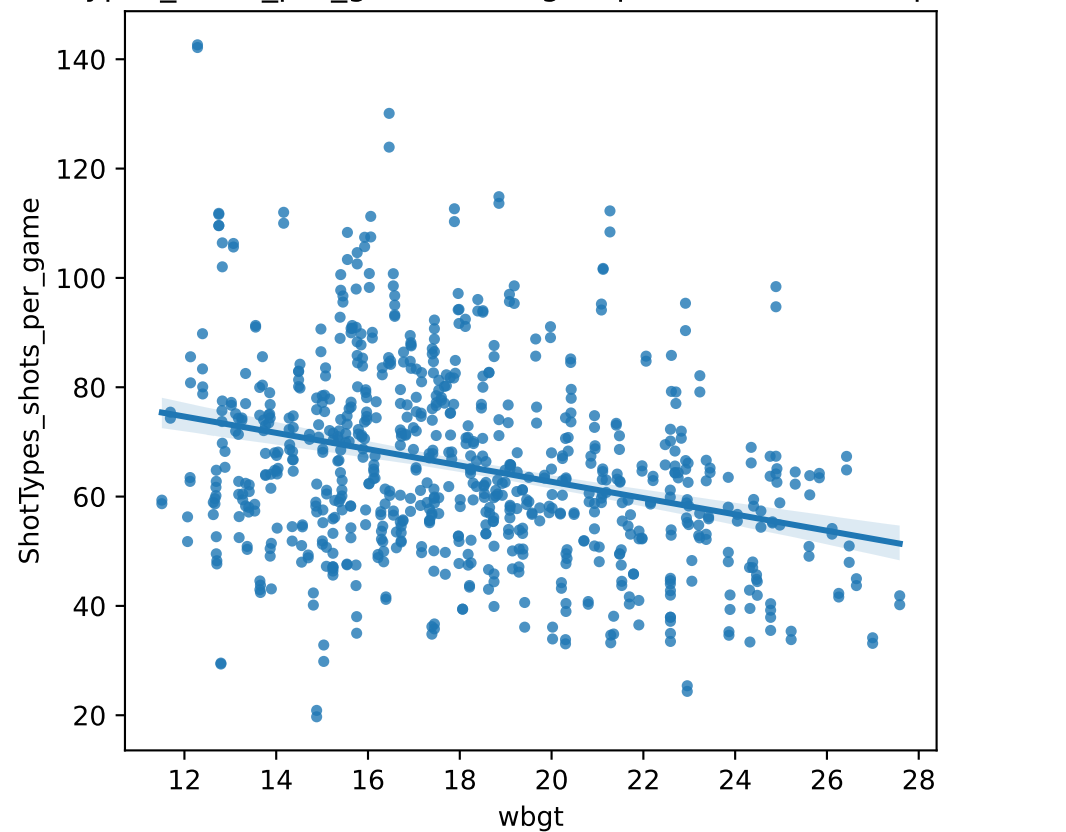
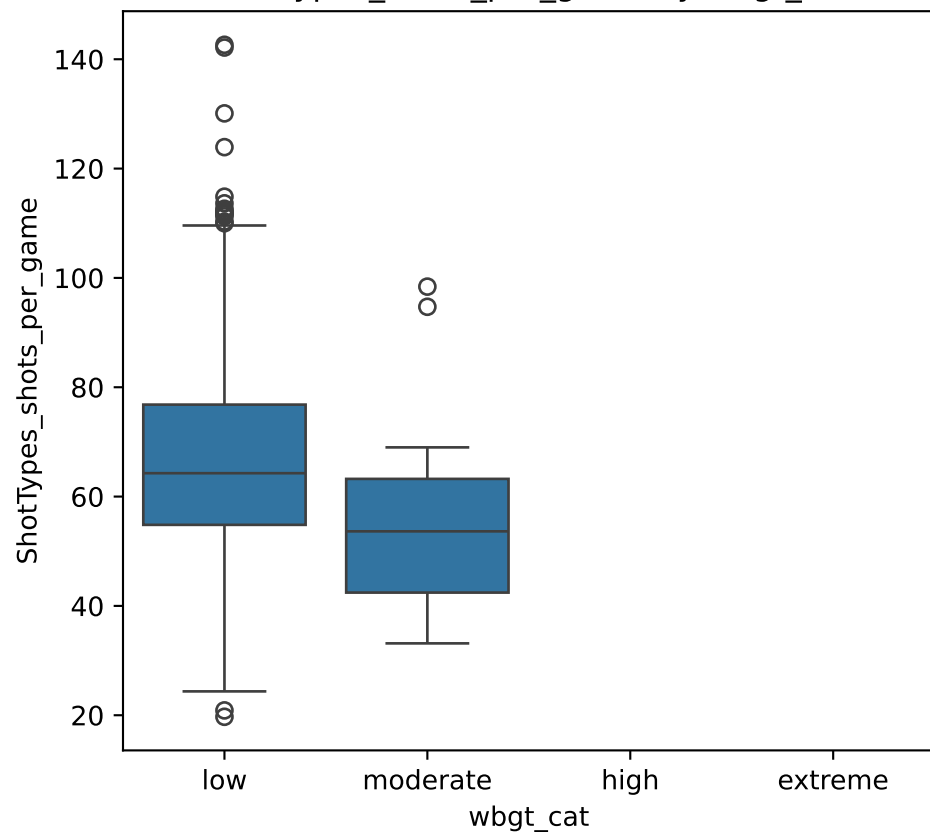
Kruskal p=8.64e-08, Jonckheere p=NA, Corr.p=2.478647937480157e-10

ShotDirOutcomes shots in pts lost per game ShotDirOutcomes shots in pts lost per game vs temp C (Spearman  $r=-0.22$ ,  $p=0.$



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game by sma\_cat

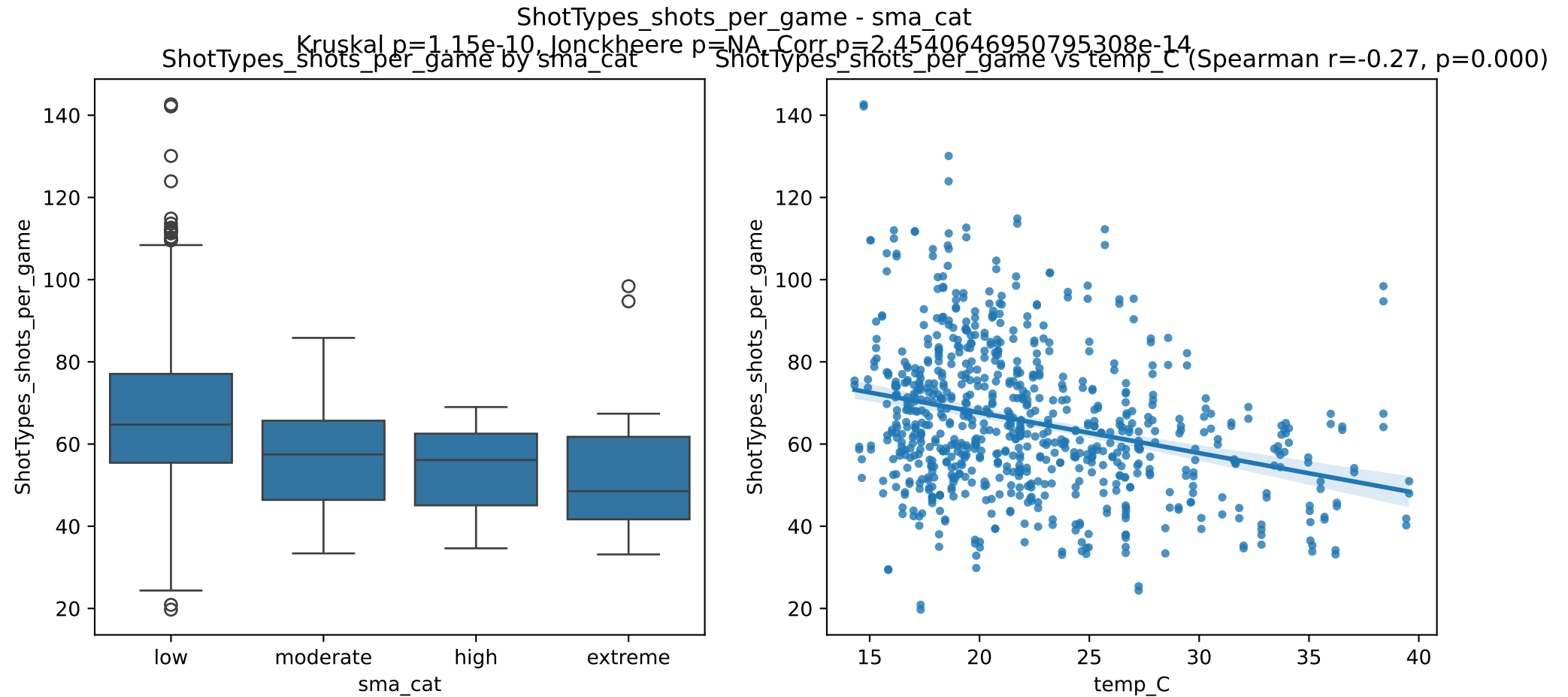
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.001 | 1.0      |
| low      | 0.0     | 0.001 | 1.0   | 0.058    |
| moderate | 1.0     | 1.0   | 0.058 | 1.0      |



# Dunn Post-hoc (p-değerleri)

## ShotTypes\_shots\_per\_game by wbg\_t\_cat

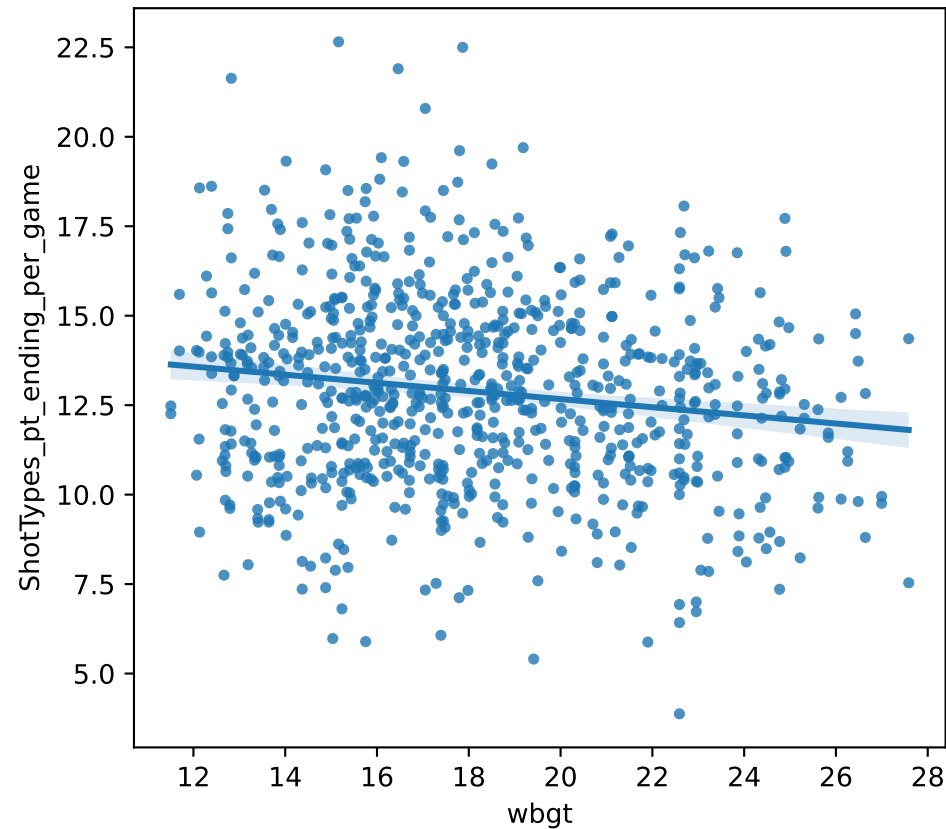
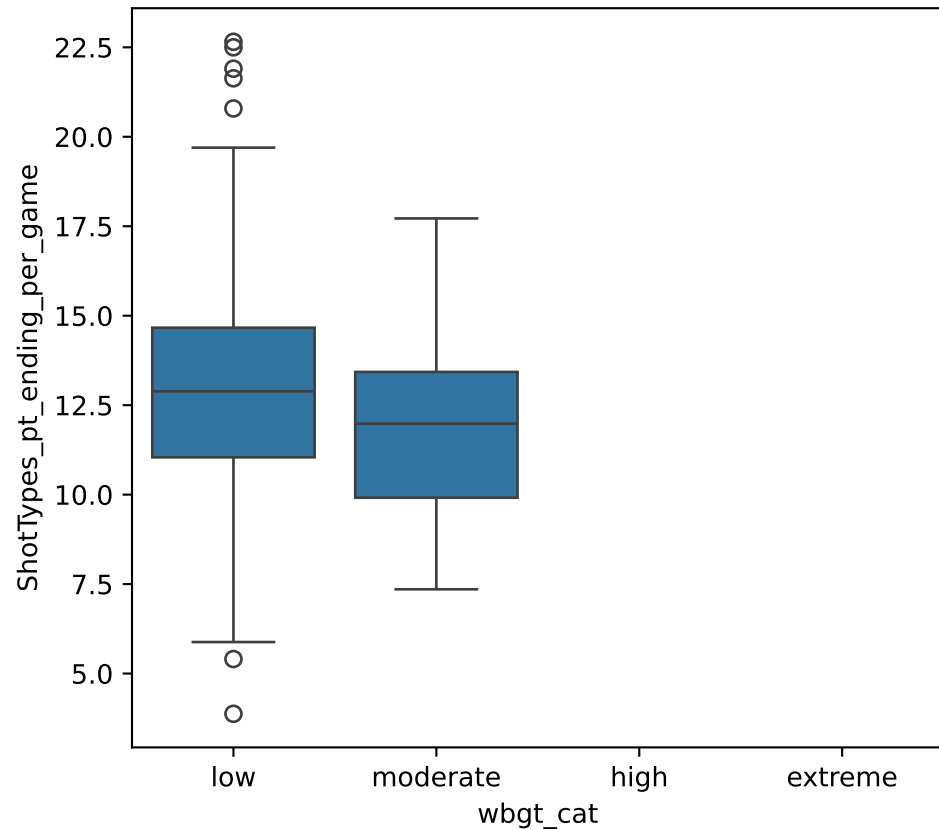
|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.0   | 0.841    |
| high     | 1.0     | 1.0  | 0.0   | 1.0      |
| low      | 0.0     | 0.0  | 1.0   | 0.012    |
| moderate | 0.841   | 1.0  | 0.012 | 1.0      |

ShotTypes\_pt\_ending\_per\_game - wbgt\_cat  
Kruskal p=0.00211, Jonckheere p=NA, Corr p=0.0005601424722504601  
ShotTypes\_pt\_ending\_per\_game by wbgt\_cat ShotTypes\_pt\_ending\_per\_game vs wbgt (Spearman r=-0.12, p=0.001)

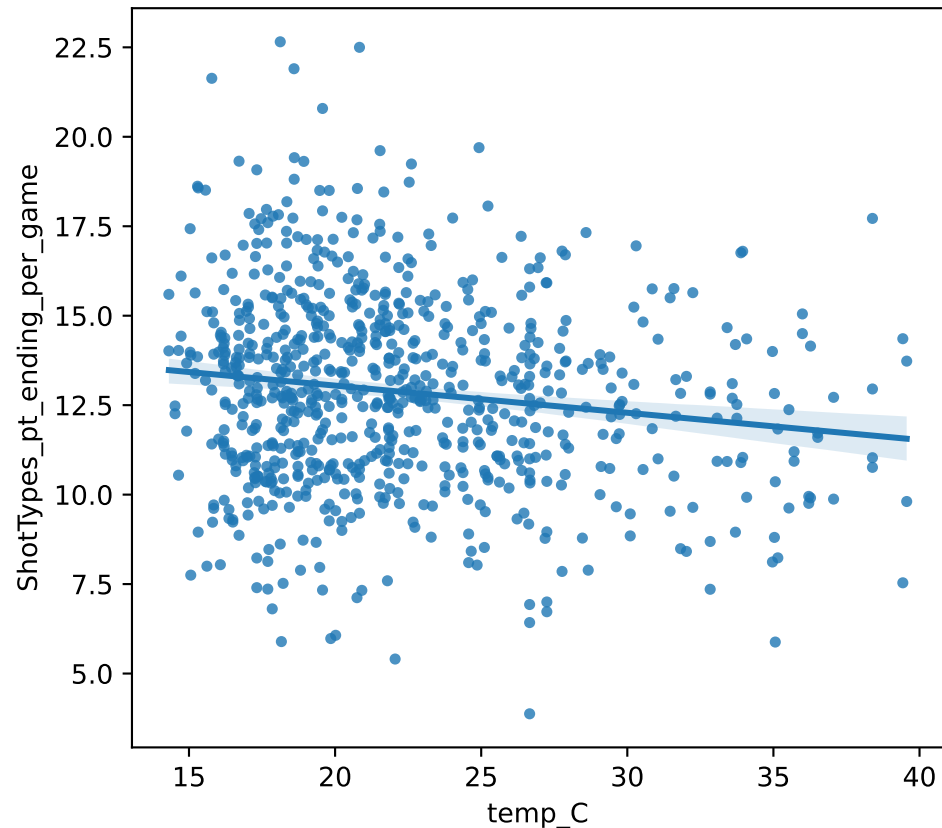
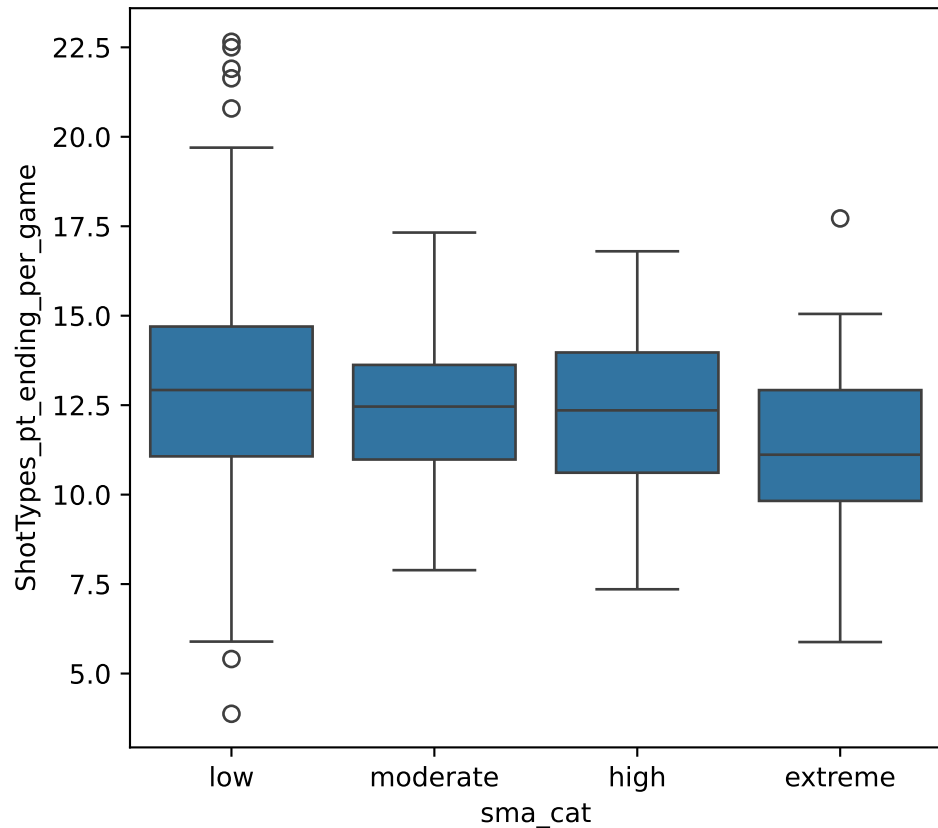


Dunn Post-hoc (p-değerleri)  
ShotTypes\_pt\_ending\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.002    |
| moderate | 0.002 | 1.0      |



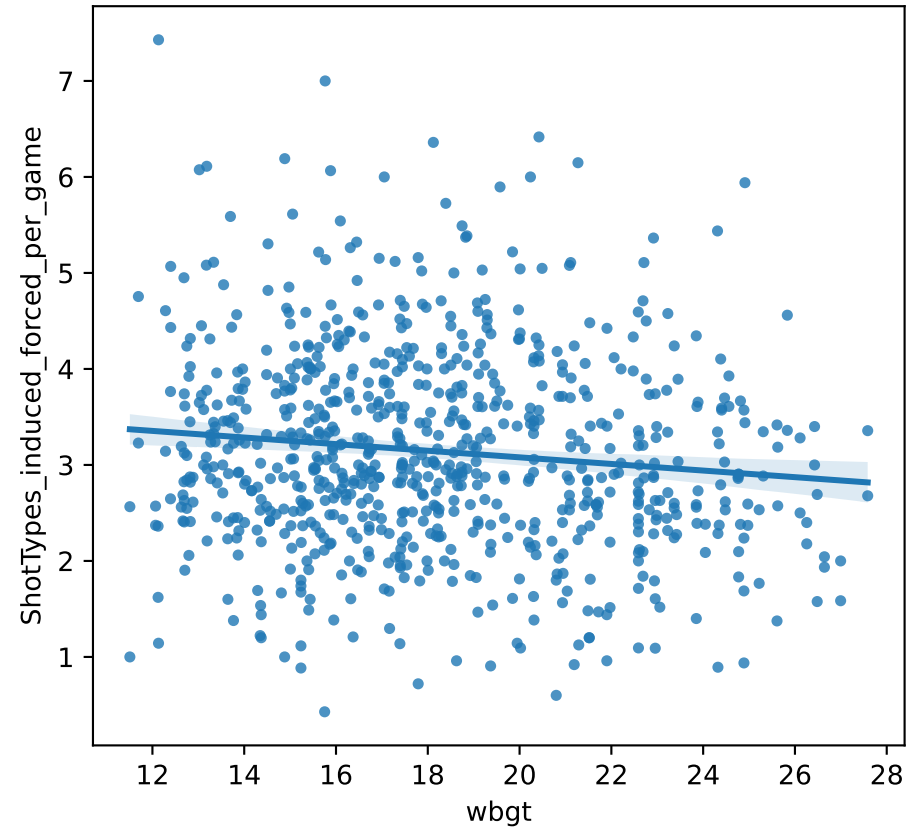
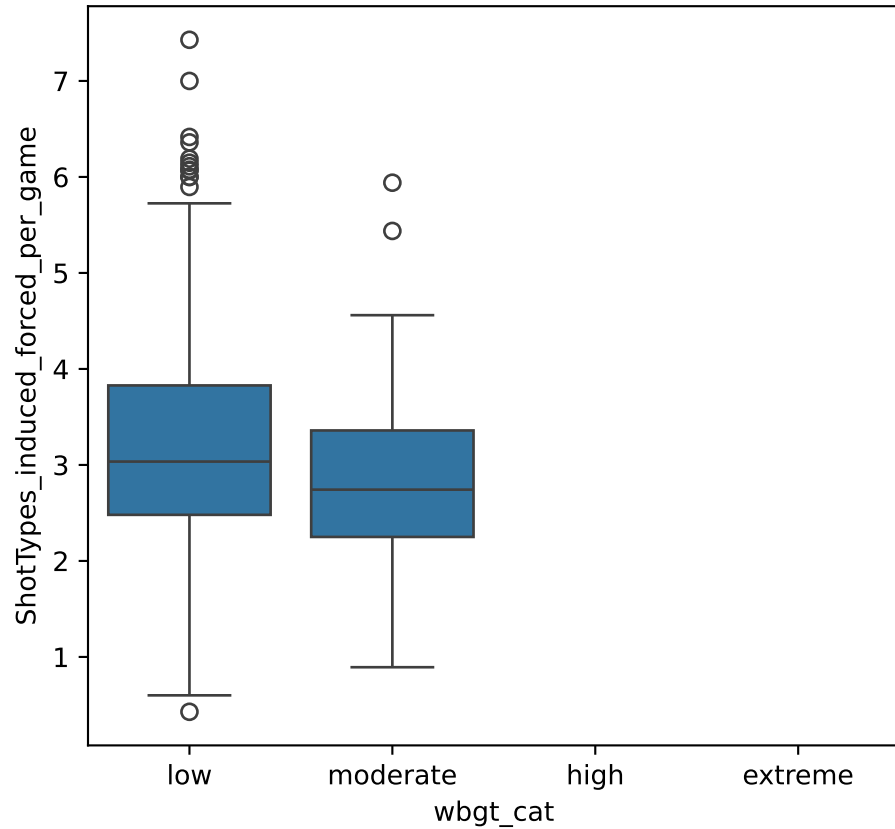
ShotTypes\_pt\_ending\_per\_game - sma\_cat  
Kruskal p=0.00305, Jonckheere p=NA, Corr p=0.00145422262866807  
ShotTypes\_pt\_ending\_per\_game by sma\_cat ShotTypes\_pt\_ending\_per\_game vs temp\_C (Spearman r=-0.11, p=0.001)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_pt\_ending\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.008 | 0.867    |
| high     | 1.0     | 1.0   | 0.562 | 1.0      |
| low      | 0.008   | 0.562 | 1.0   | 1.0      |
| moderate | 0.867   | 1.0   | 1.0   | 1.0      |

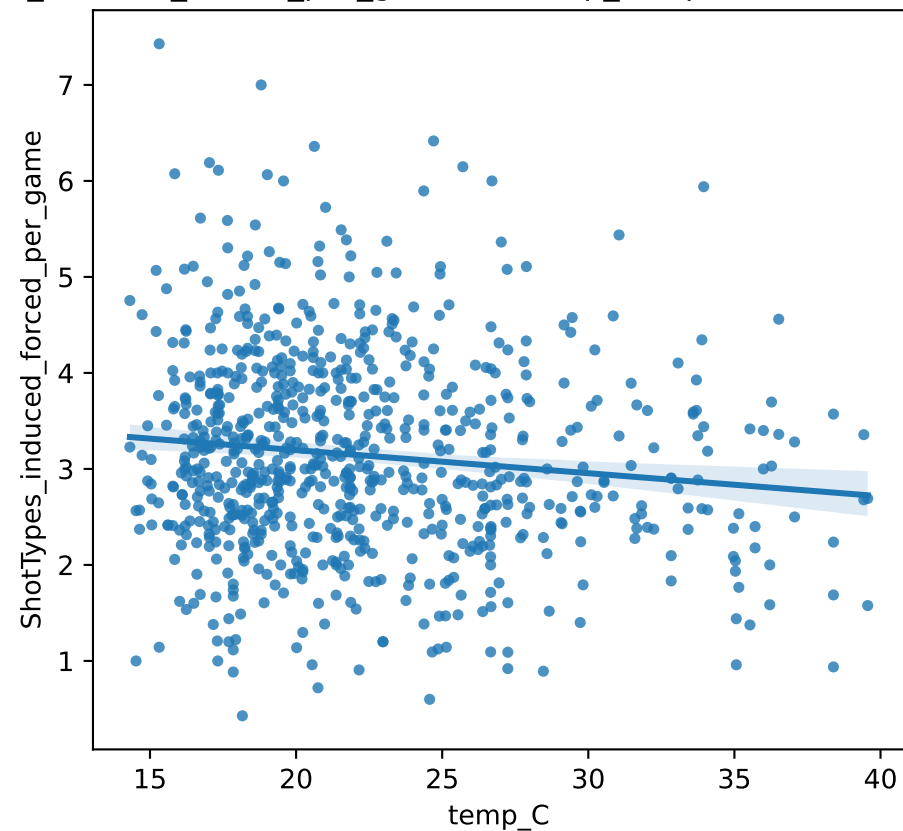
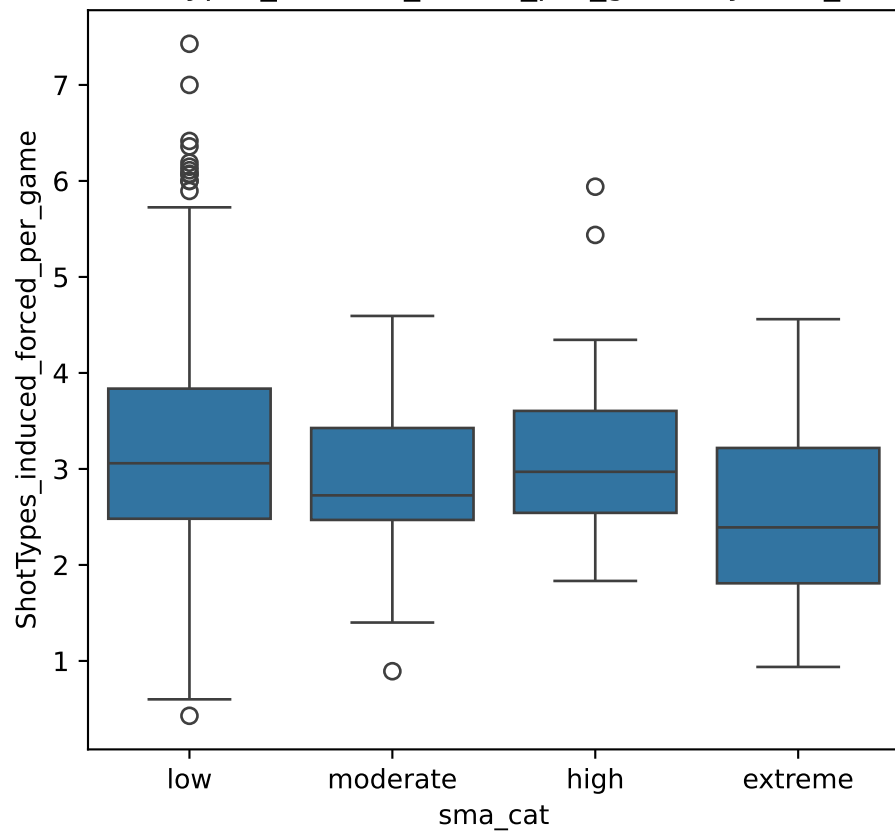
ShotTypes\_induced\_forced\_per\_game - wbgt\_cat  
 Kruskal p=0.00781, Jonckheere p=NA, Corr p=0.003935049029807203  
 ShotTypes\_induced\_forced\_per\_game by wbgt\_cat ShotTypes\_induced\_forced\_per\_game vs wbgt (Spearman r=-0.10, p=0.004)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_induced\_forced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.008    |
| moderate | 0.008 | 1.0      |

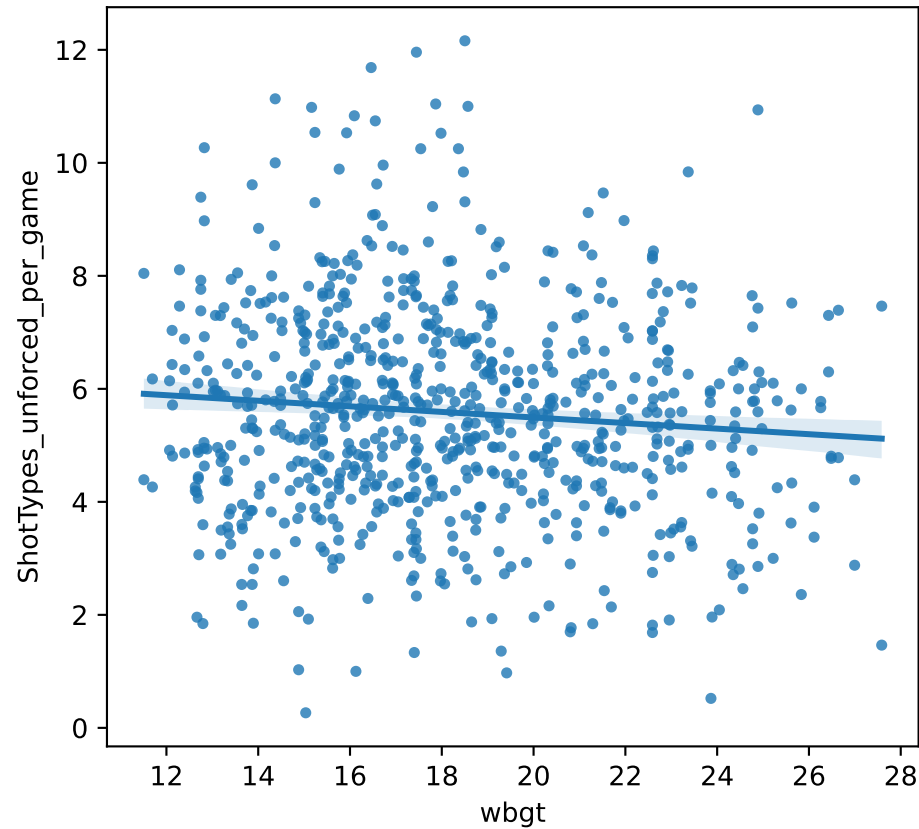
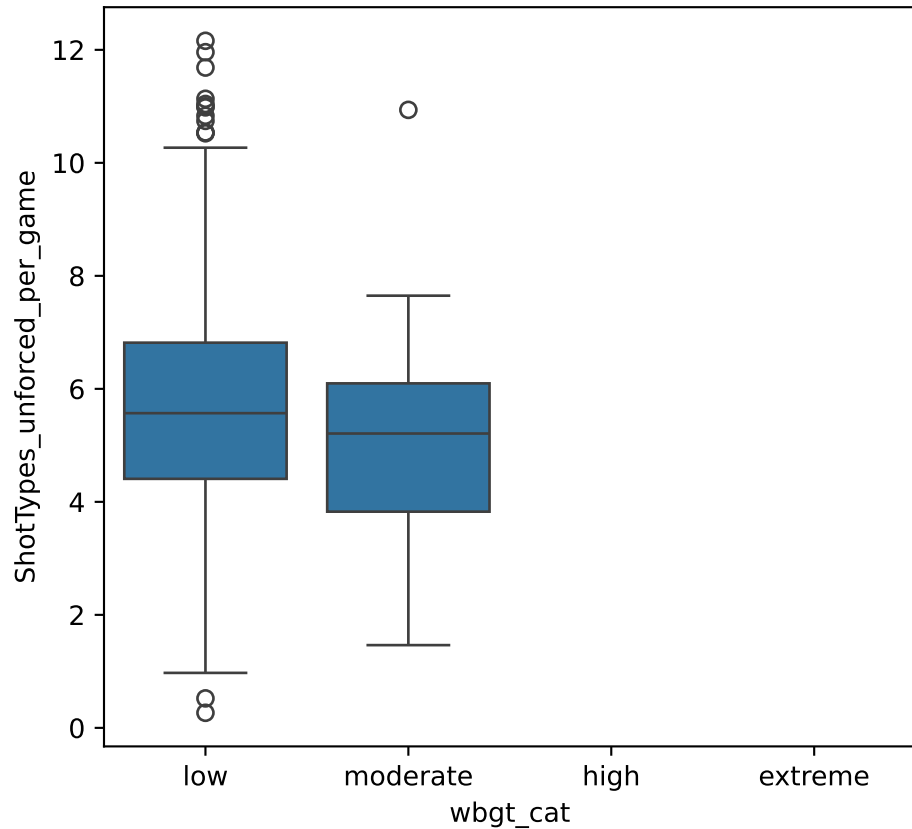
ShotTypes\_induced\_forced\_per\_game - sma\_cat  
Kruskal p=0.00126, Jonckheere p=NA, Corr p=0.005782266375574897  
ShotTypes\_induced\_forced\_per\_game by sma\_cat  
ShotTypes\_induced\_forced\_per\_game vs temp\_C (Spearman r=-0.10, p=0.006)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_induced\_forced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.049 | 0.001 | 0.405    |
| high     | 0.049   | 1.0   | 1.0   | 1.0      |
| low      | 0.001   | 1.0   | 1.0   | 0.966    |
| moderate | 0.405   | 1.0   | 0.966 | 1.0      |

ShotTypes\_unforced\_per\_game - wbgmt\_cat  
 Kruskal p=0.0329, Jonckheere p=NA, Corr p=0.03445872974493386  
 ShotTypes\_unforced\_per\_game by wbgmt\_cat ShotTypes\_unforced\_per\_game vs wbgmt (Spearman r=-0.08, p=0.034)

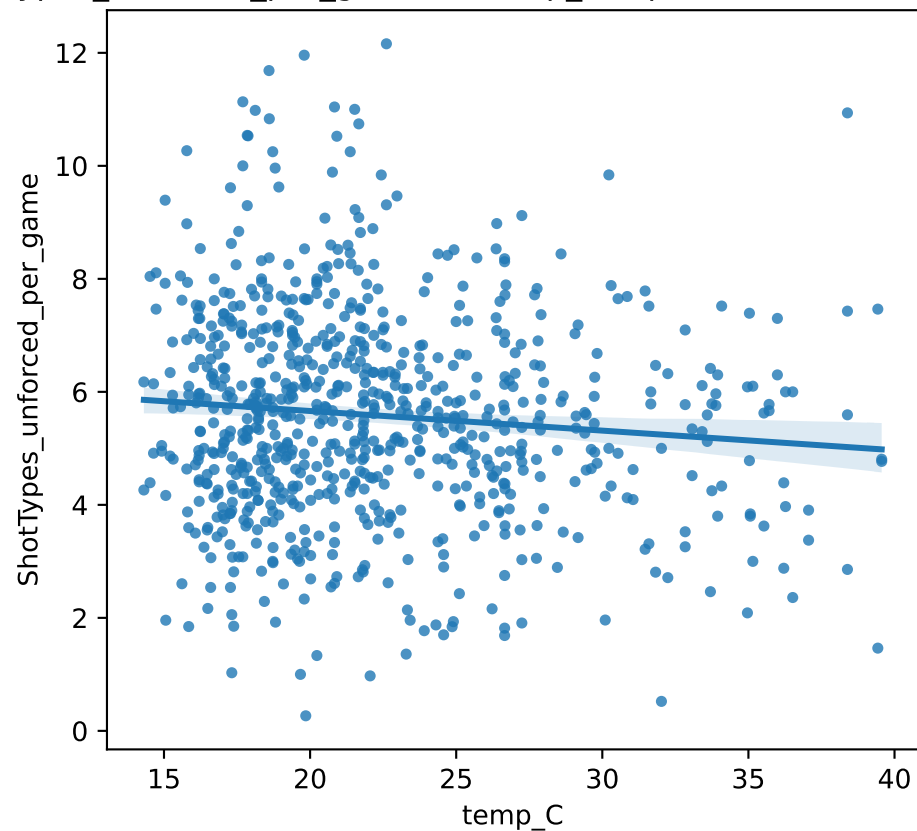
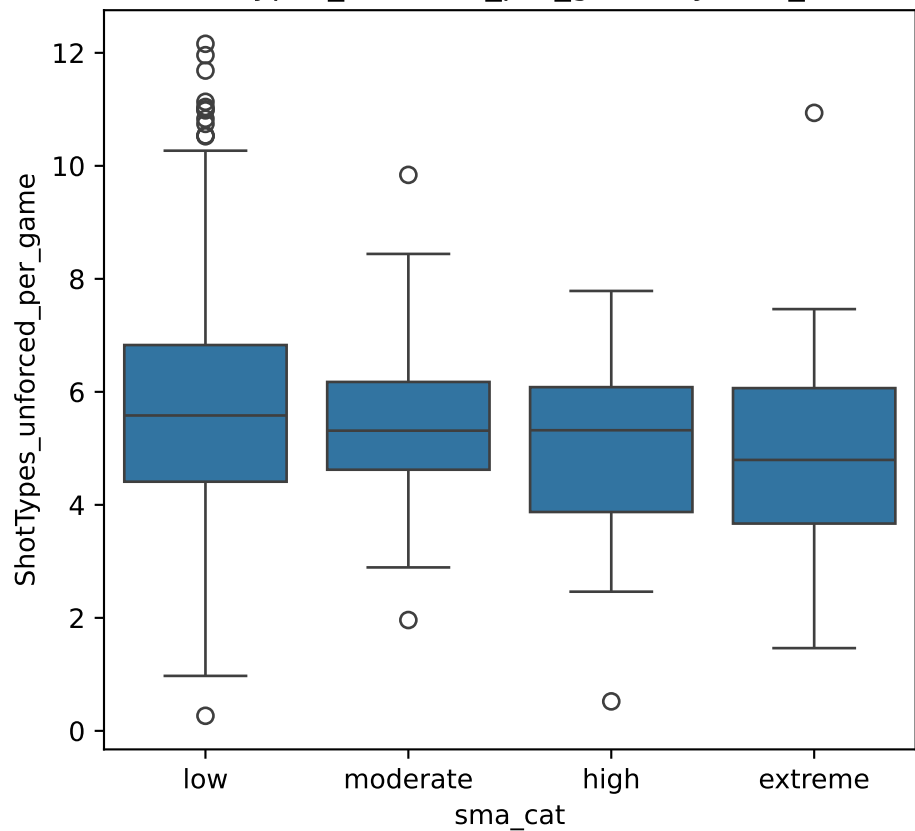


Dunn Post-hoc (p-değerleri)  
ShotTypes\_unforced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.033    |
| moderate | 0.033 | 1.0      |



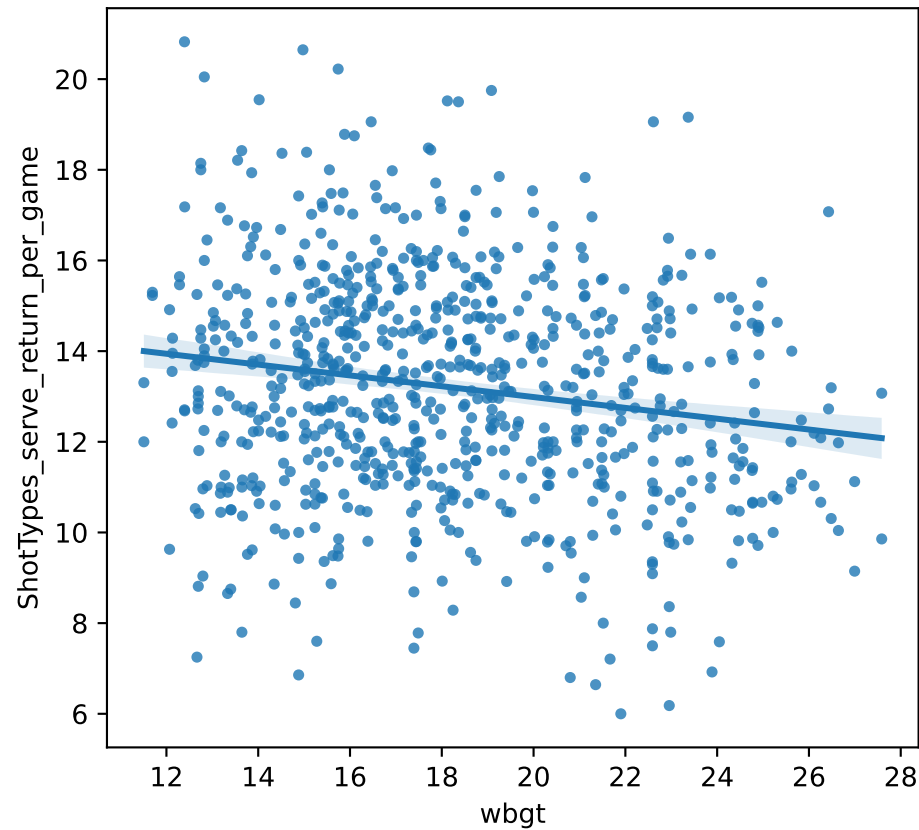
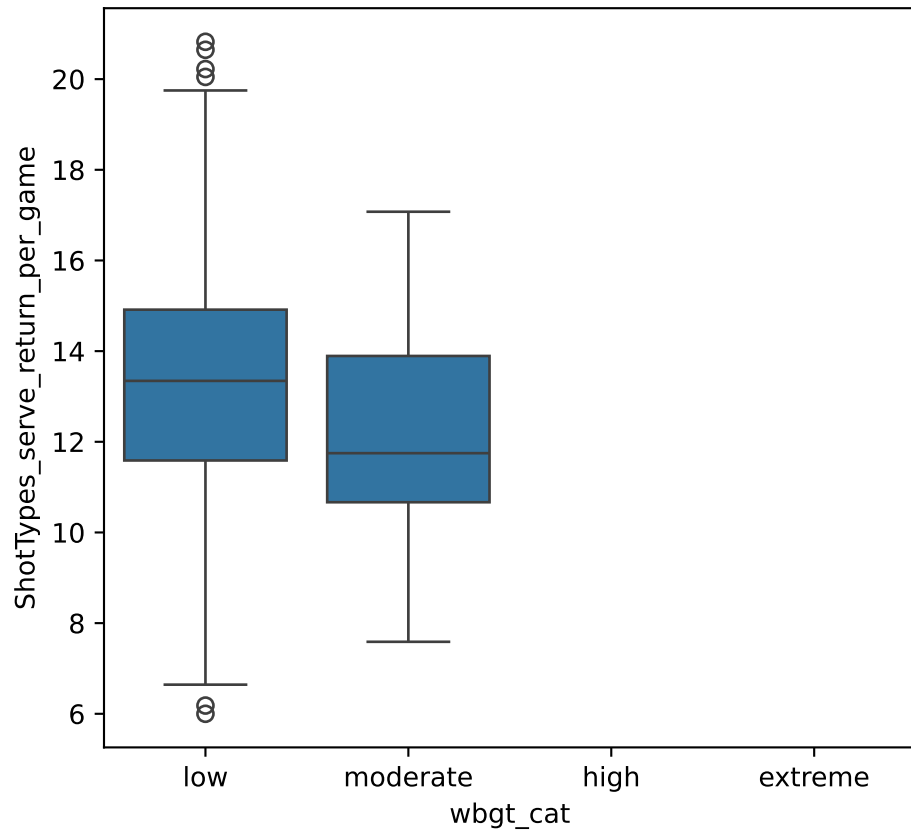
ShotTypes\_unforced\_per\_game - sma\_cat  
Kruskal p=0.0969, Jonckheere p=NA, Corr p=0.04802639494334445  
ShotTypes\_unforced\_per\_game by sma\_cat ShotTypes\_unforced\_per\_game vs temp\_C (Spearman r=-0.07, p=0.048)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_unforced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.302 | 1.0      |
| high     | 1.0     | 1.0   | 0.637 | 1.0      |
| low      | 0.302   | 0.637 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |

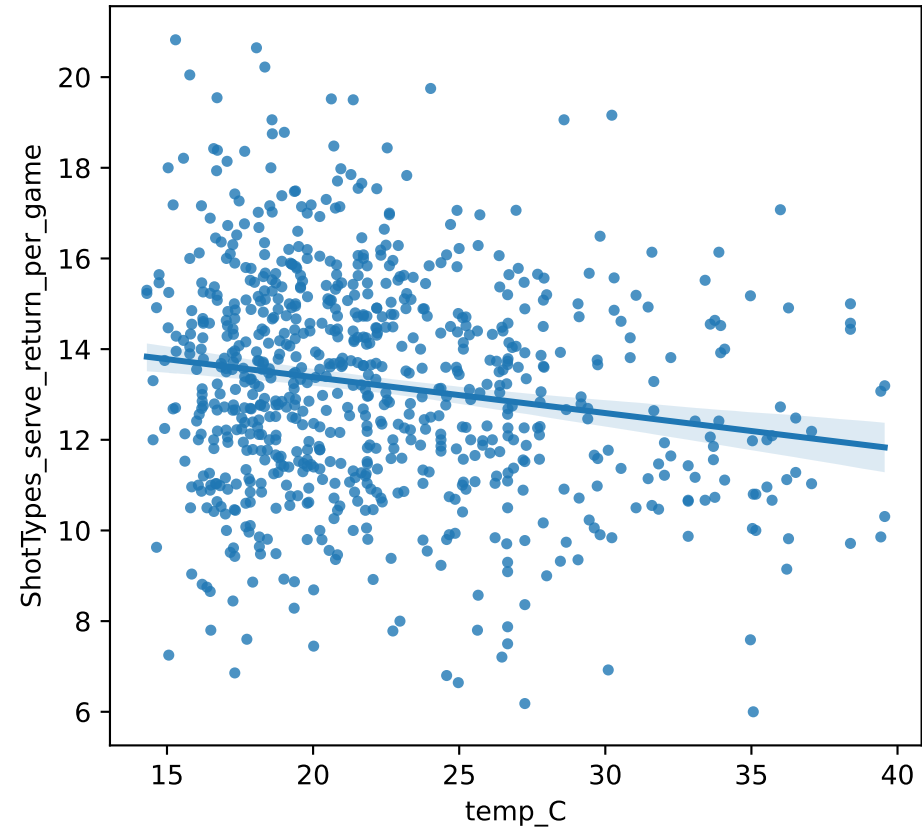
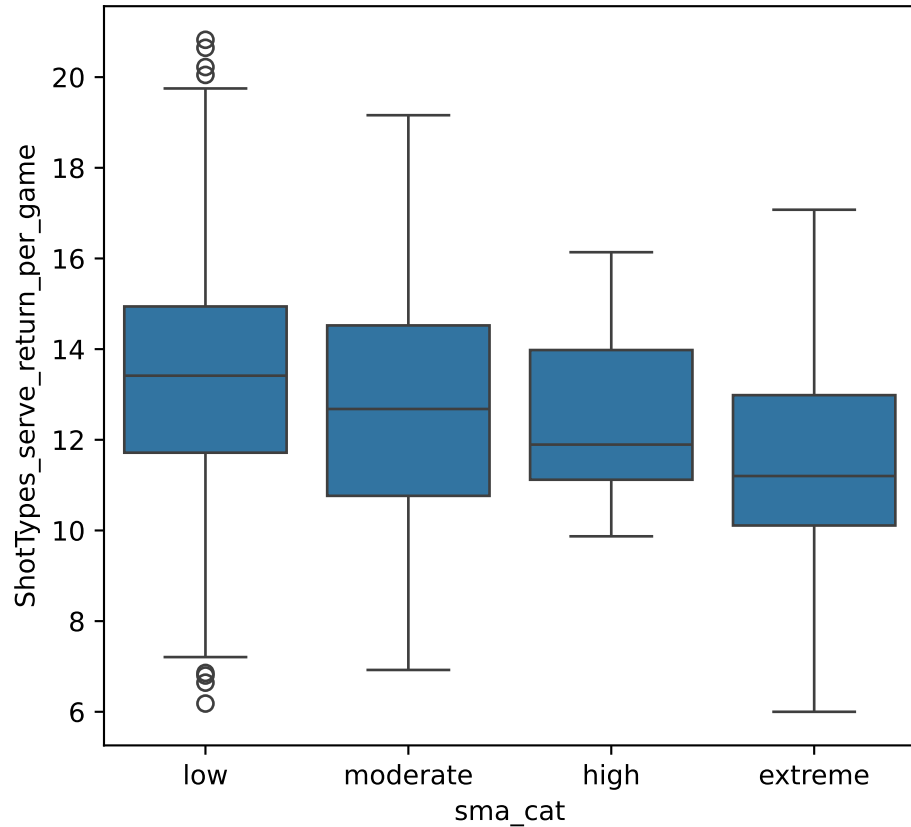
ShotTypes\_serve\_return\_per\_game - wbgt\_cat  
Kruskal p=0.000121, Jonckheere p=NA, Corr p=4.0610961969683706e-05  
ShotTypes\_serve\_return\_per\_game by wbgt\_cat ShotTypes\_serve\_return\_per\_game vs wbgt (Spearman r=-0.15, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_serve\_return\_per\_game by wbgc\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

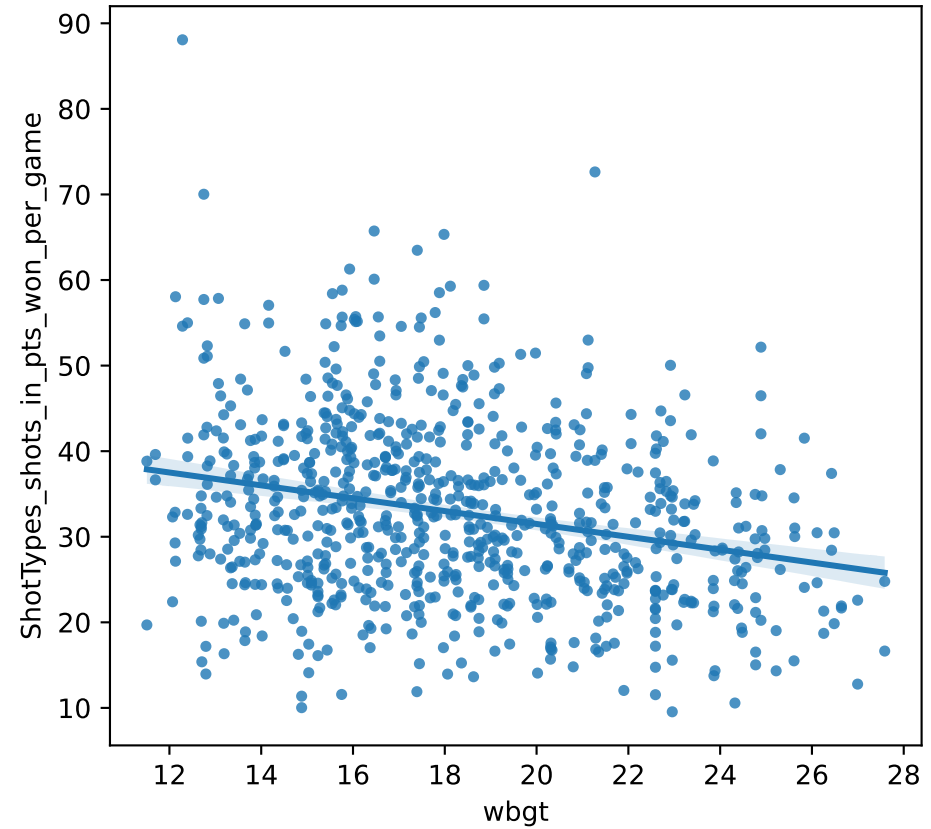
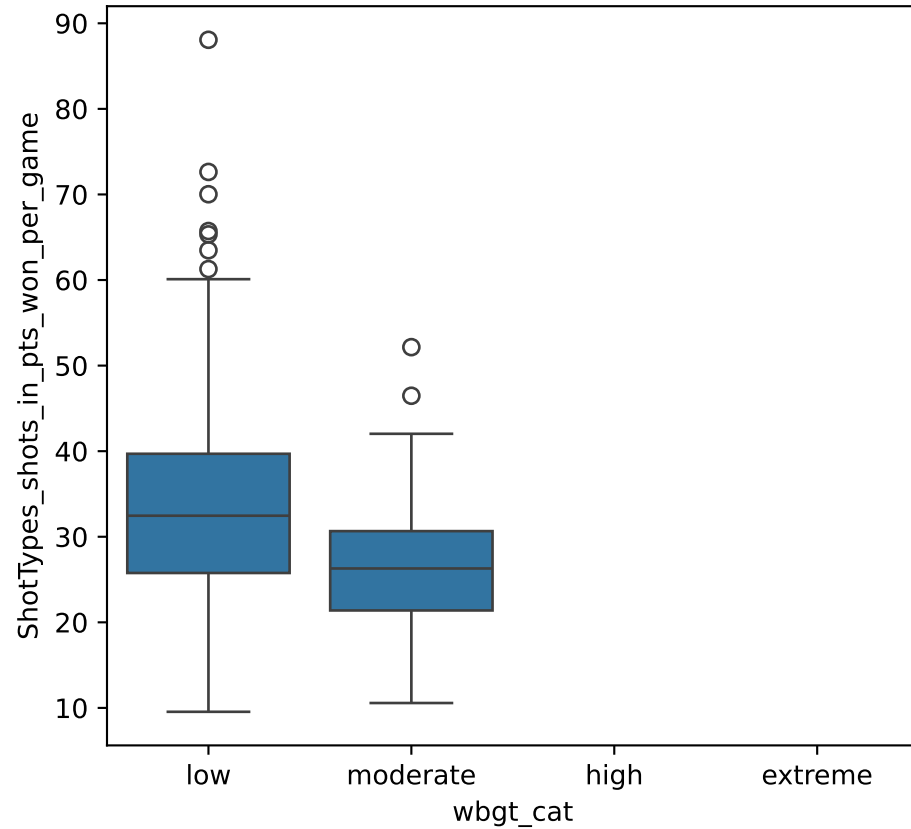
ShotTypes\_serve\_return\_per\_game - sma\_cat  
Kruskal p=0.000212, Jonckheere p=NA, Corr p=0.00016961012380252904  
ShotTypes\_serve\_return\_per\_game by sma\_cat ShotTypes\_serve\_return\_per\_game vs temp\_C (Spearman r=-0.13, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_serve\_return\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.002 | 0.663    |
| high     | 1.0     | 1.0   | 0.142 | 1.0      |
| low      | 0.002   | 0.142 | 1.0   | 0.659    |
| moderate | 0.663   | 1.0   | 0.659 | 1.0      |

ShotTypes\_shots\_in\_pts\_won\_per\_game - wbgc\_cat  
Kruskal p=9.76e-07, lonckheere p=NA, Corr p=1.6744776344661355e-11  
ShotTypes\_shots\_in\_pts\_won\_per\_game by wbgc\_cat ShotTypes\_shots\_in\_pts\_won\_per\_game vs wbgc (Spearman r=-0.24, p=0.000)

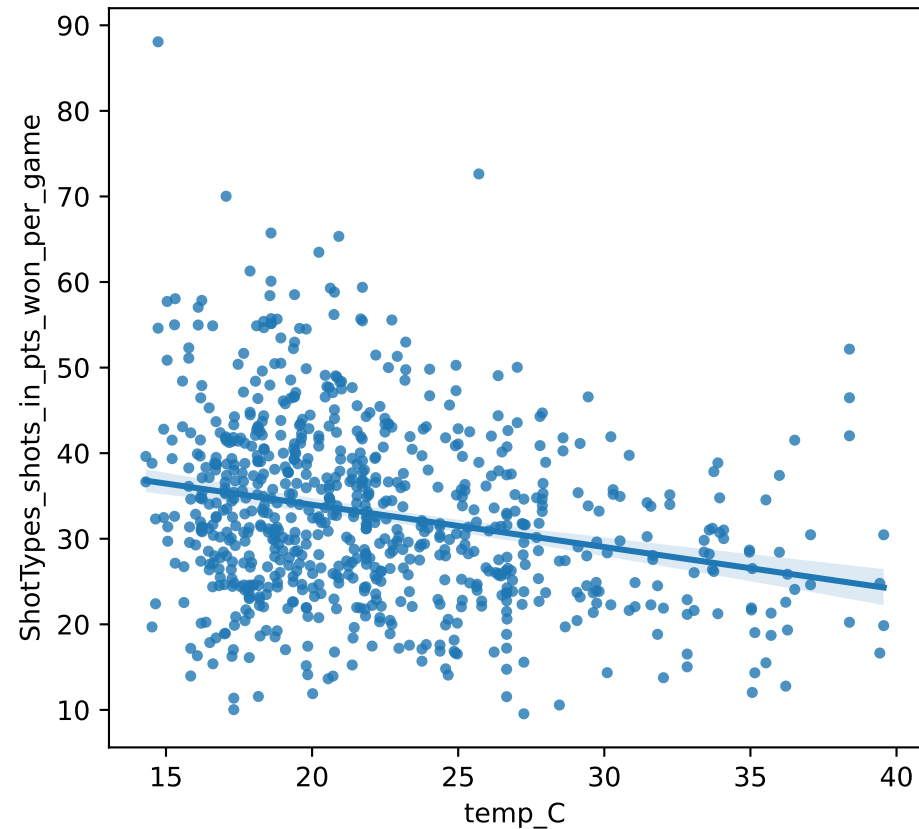
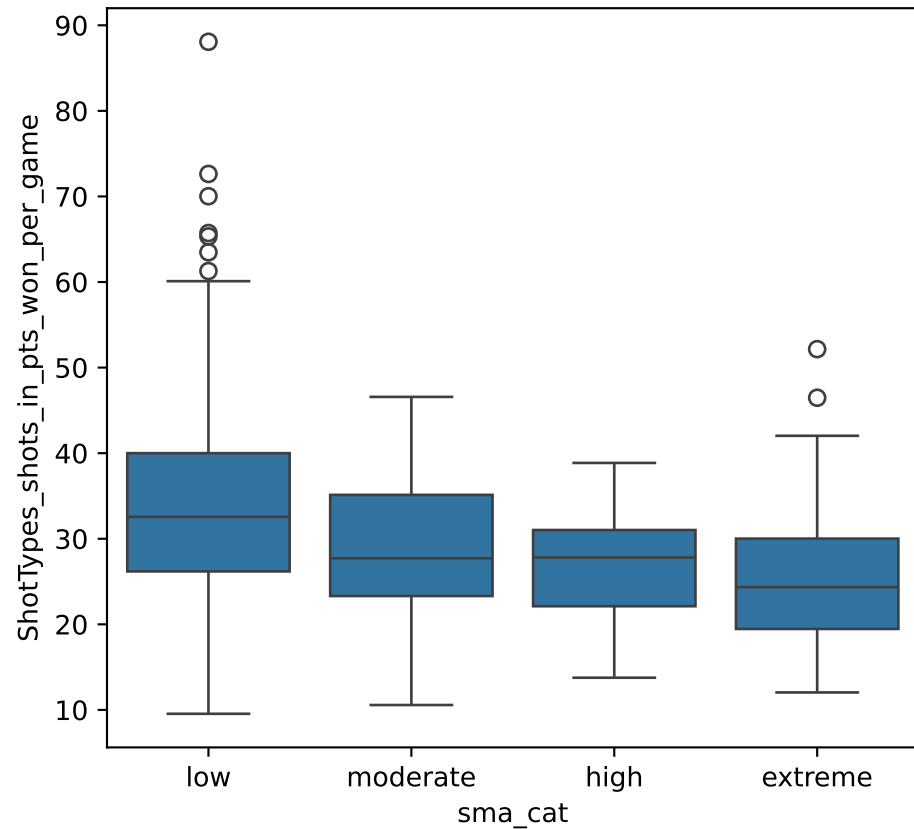


Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_won\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



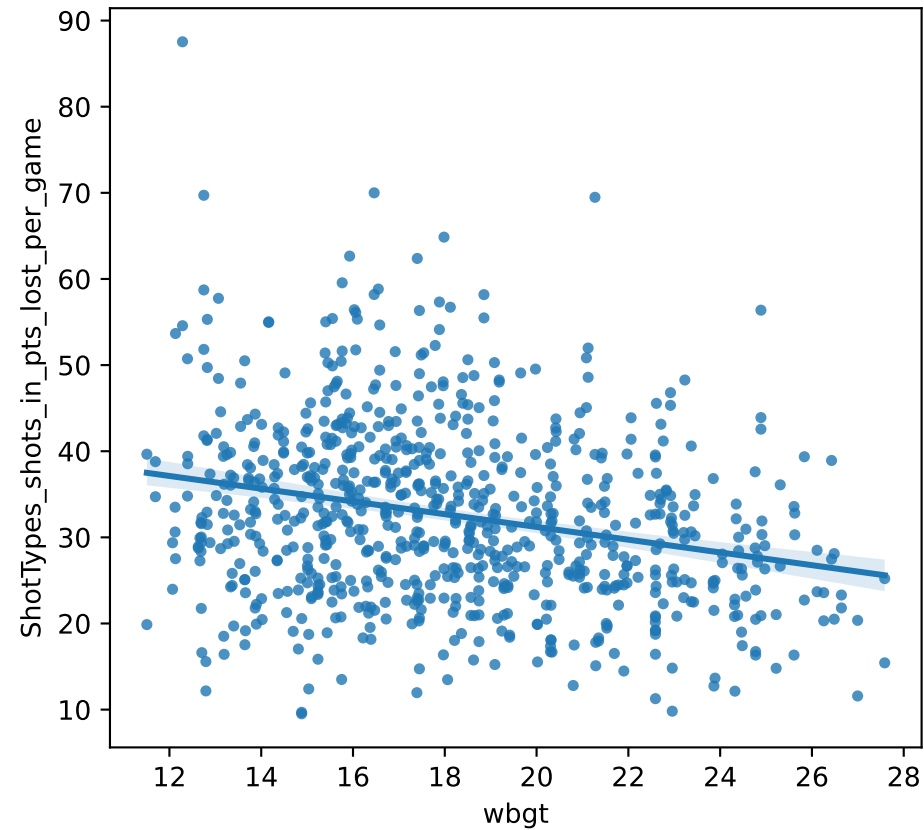
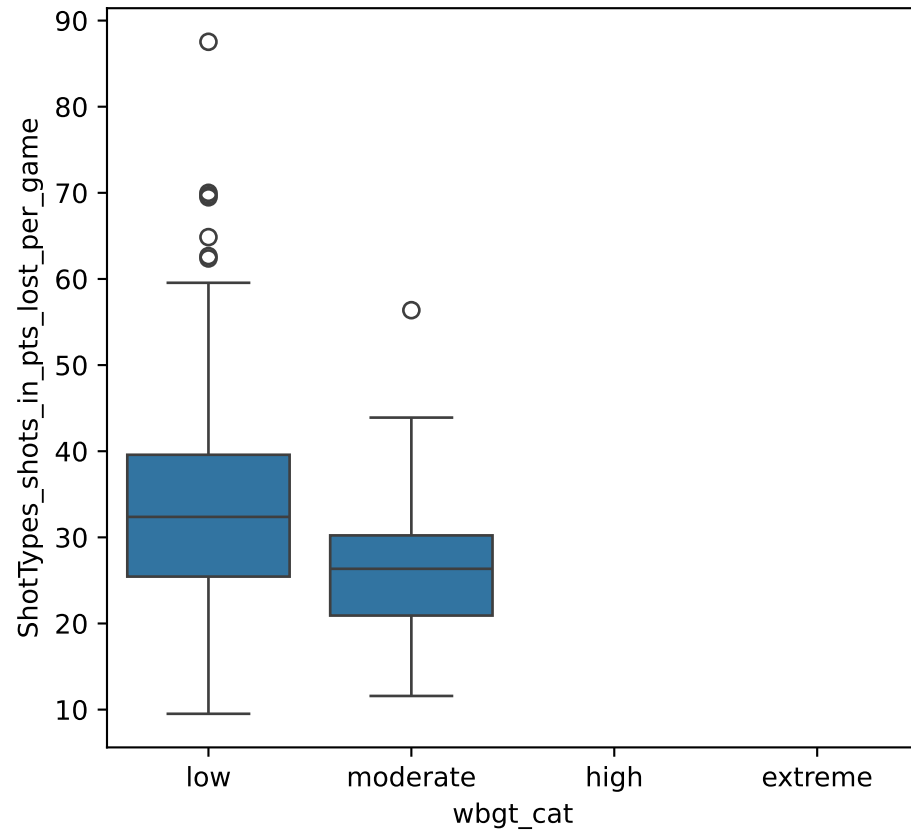
ShotTypes\_shots\_in\_pts\_won\_per\_game - sma\_cat  
Kruskal p=1.16e-07, lonckheere p=NA, Corr p=1.5457962638905636e-10  
ShotTypes\_shots\_in\_pts\_won\_per\_game by sma\_cat  
ShotTypes\_shots\_in\_pts\_won\_per\_game vs temp\_C (Spearman r=-0.23, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_won\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.001 | 1.0      |
| low      | 0.0     | 0.001 | 1.0   | 0.048    |
| moderate | 1.0     | 1.0   | 0.048 | 1.0      |

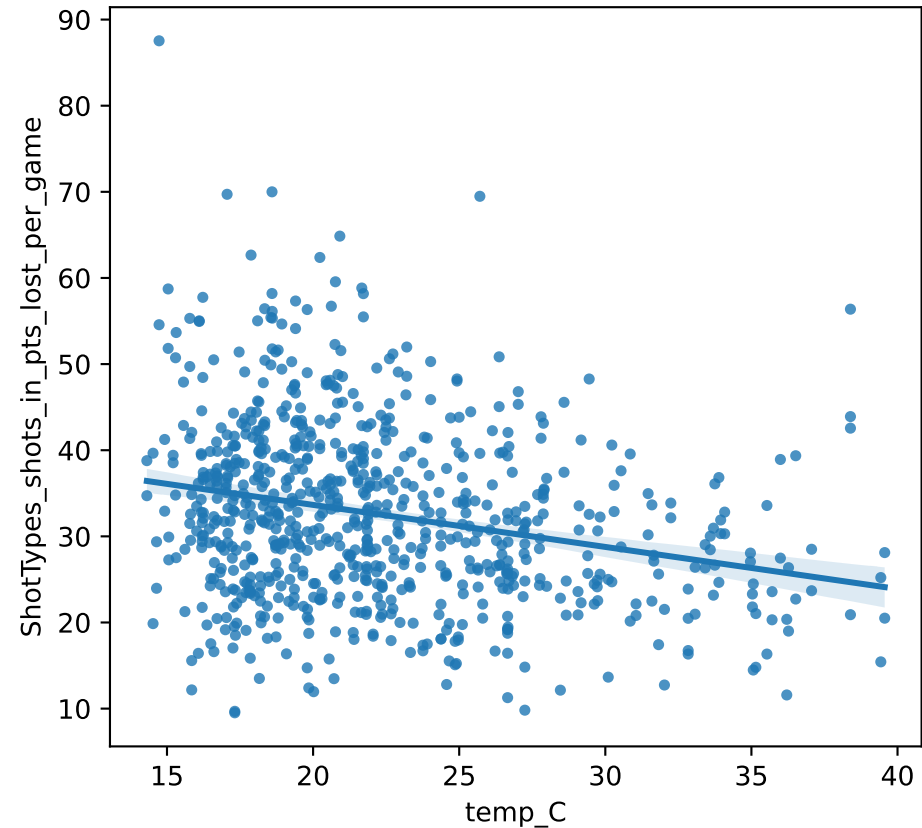
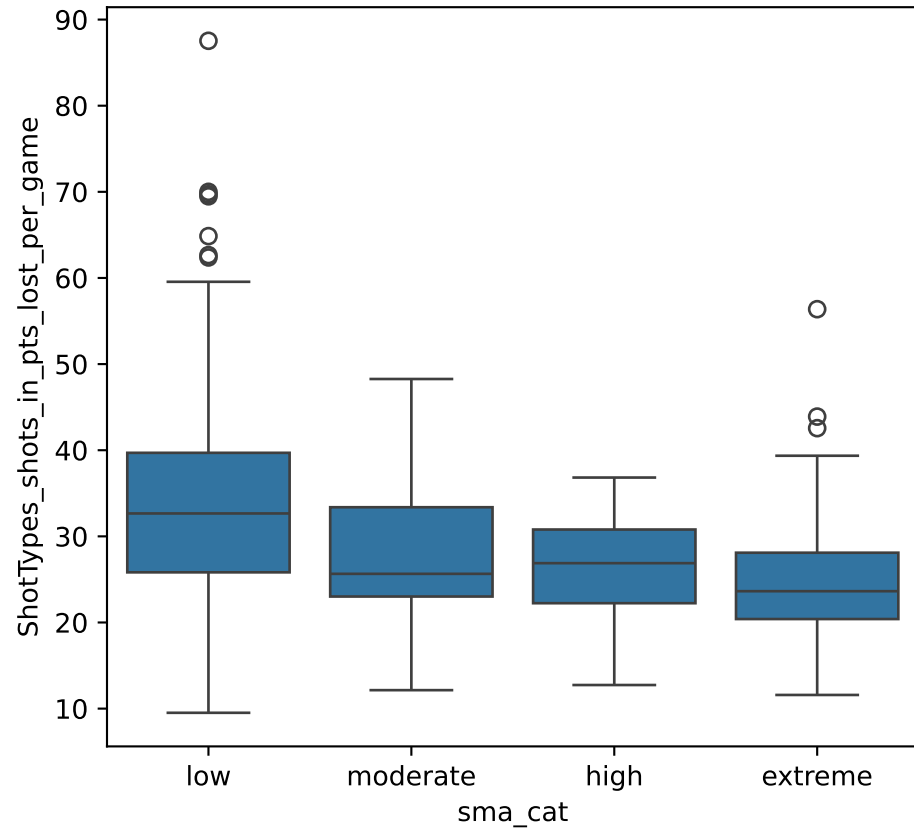
ShotTypes\_shots\_in\_pts\_lost\_per\_game - wbgc\_cat  
Kruskal p=3.05e-07, Jonckheere p=NA, Corr p=7.131816031549057e-12  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by wbgc\_cat ShotTypes\_shots\_in\_pts\_lost\_per\_game vs wbgc (Spearman r=-0.24, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by wbgt\_cat

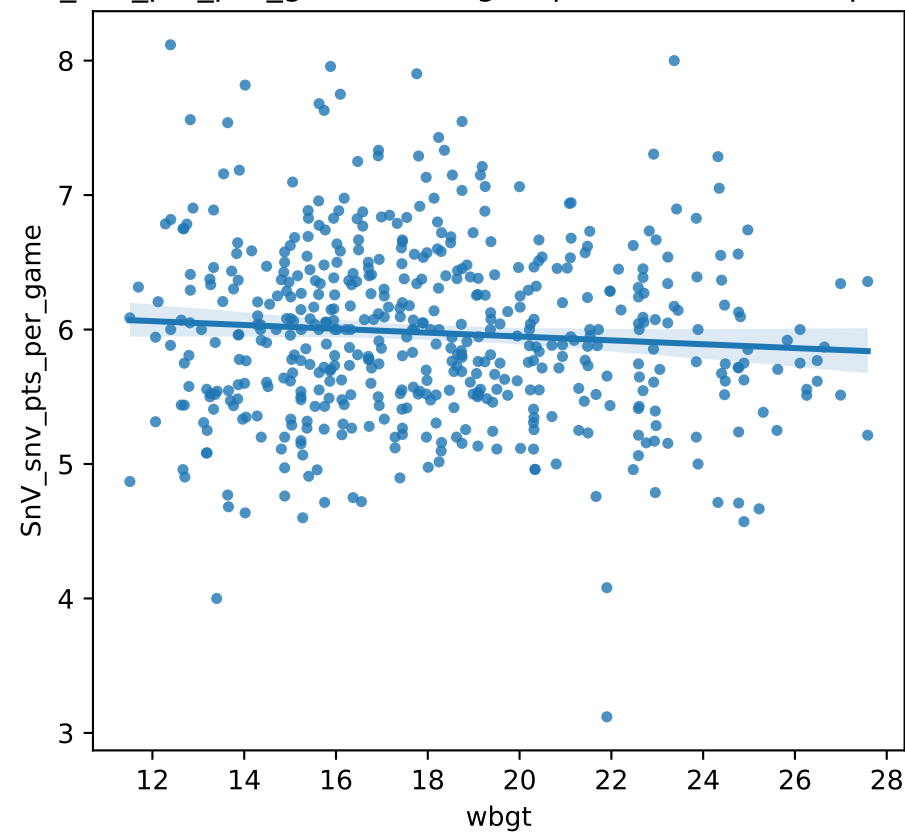
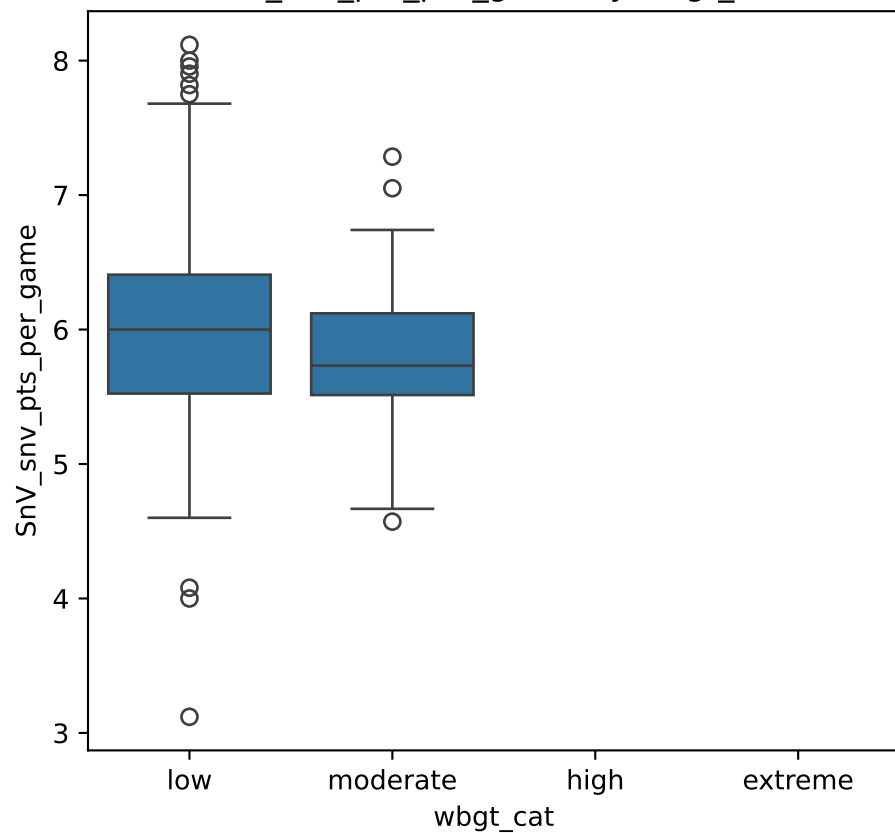
|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

ShotTypes\_shots\_in\_pts\_lost\_per\_game - sma\_cat  
Kruskal p=5.7e-08, lonckheere p=NA, Corr p=6.442766356766263e-11  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by sma\_cat  
ShotTypes\_shots\_in\_pts\_lost\_per\_game vs temp\_C (Spearman r=-0.23, p=0.000)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by sma\_cat

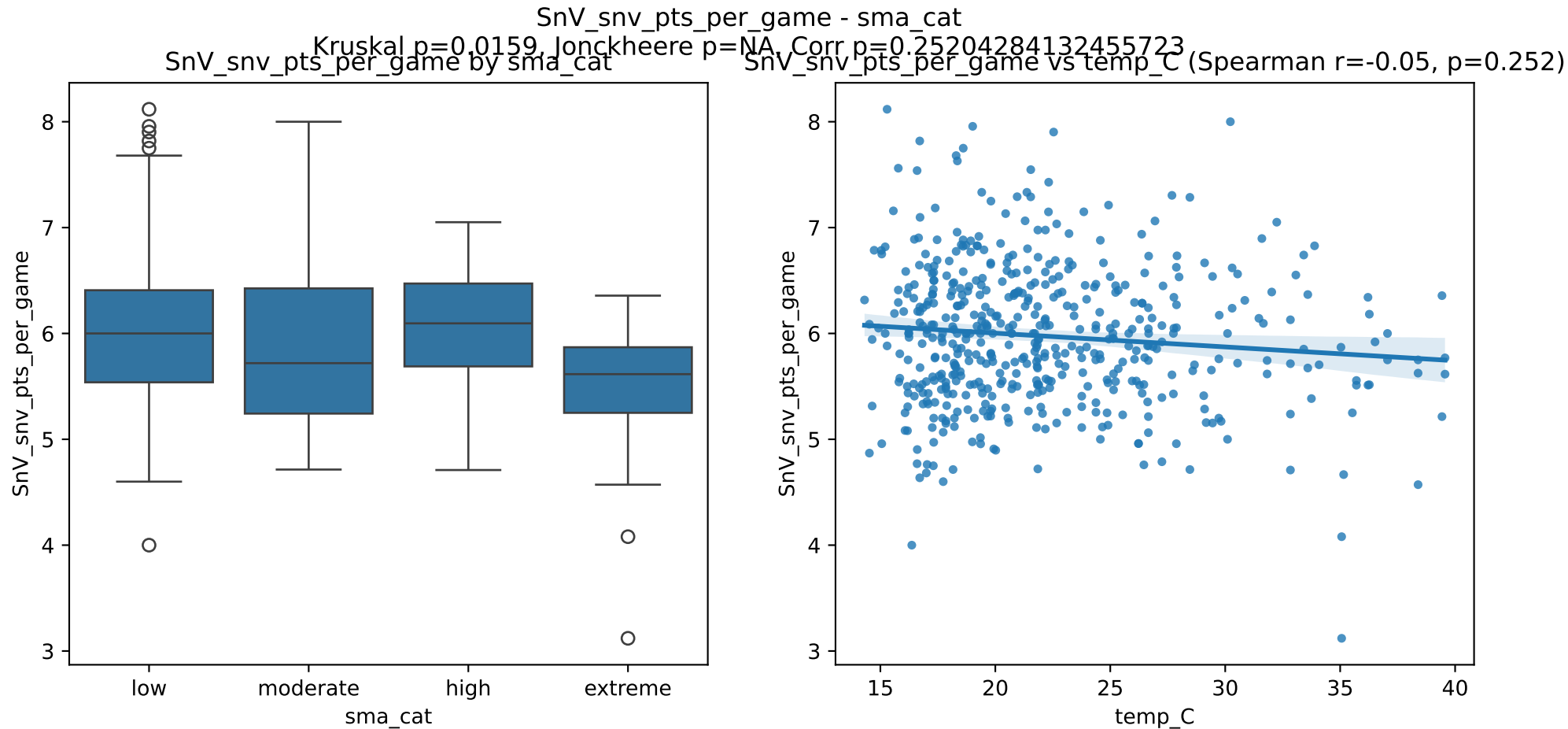
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.001 | 1.0      |
| low      | 0.0     | 0.001 | 1.0   | 0.049    |
| moderate | 1.0     | 1.0   | 0.049 | 1.0      |



Dunn Post-hoc (p-değerleri)  
SnV\_snv\_pts\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.062    |
| moderate | 0.062 | 1.0      |

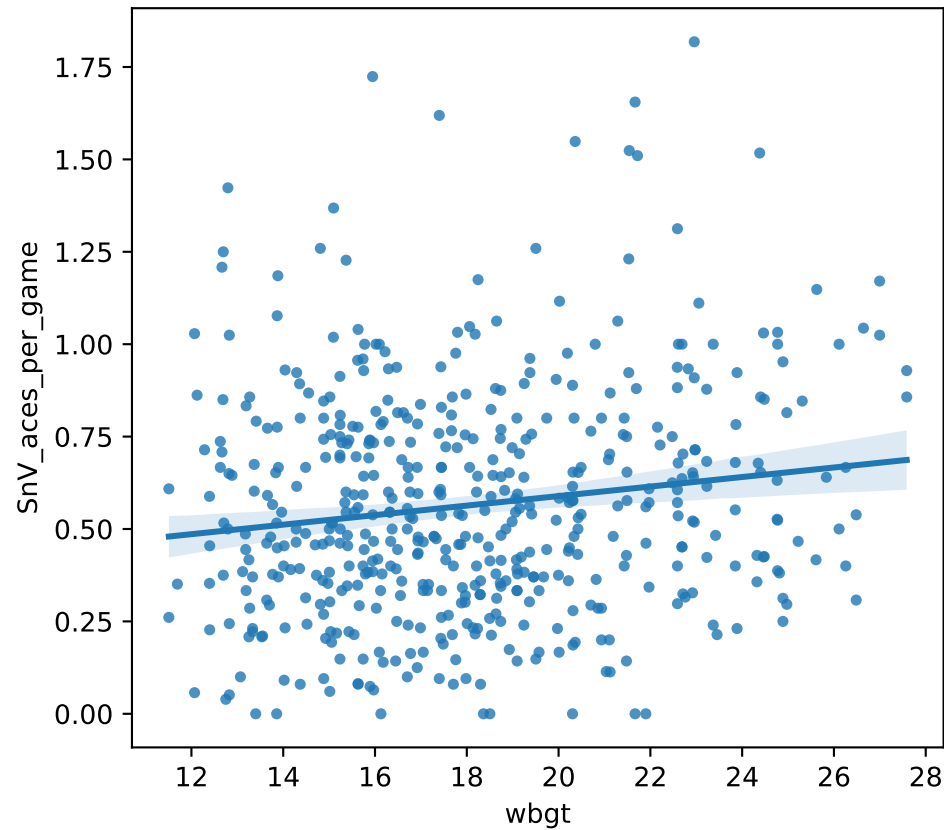
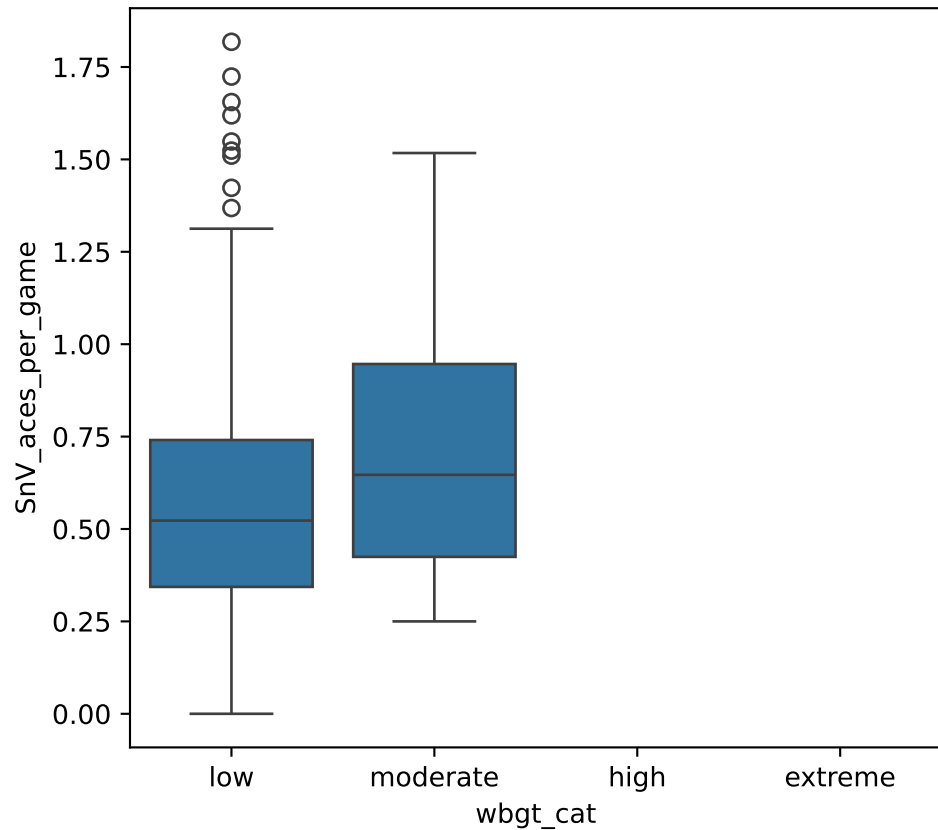




Dunn Post-hoc (p-değerleri)  
SnV\_snv\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.078 | 0.014 | 0.707    |
| high     | 0.078   | 1.0   | 1.0   | 1.0      |
| low      | 0.014   | 1.0   | 1.0   | 1.0      |
| moderate | 0.707   | 1.0   | 1.0   | 1.0      |

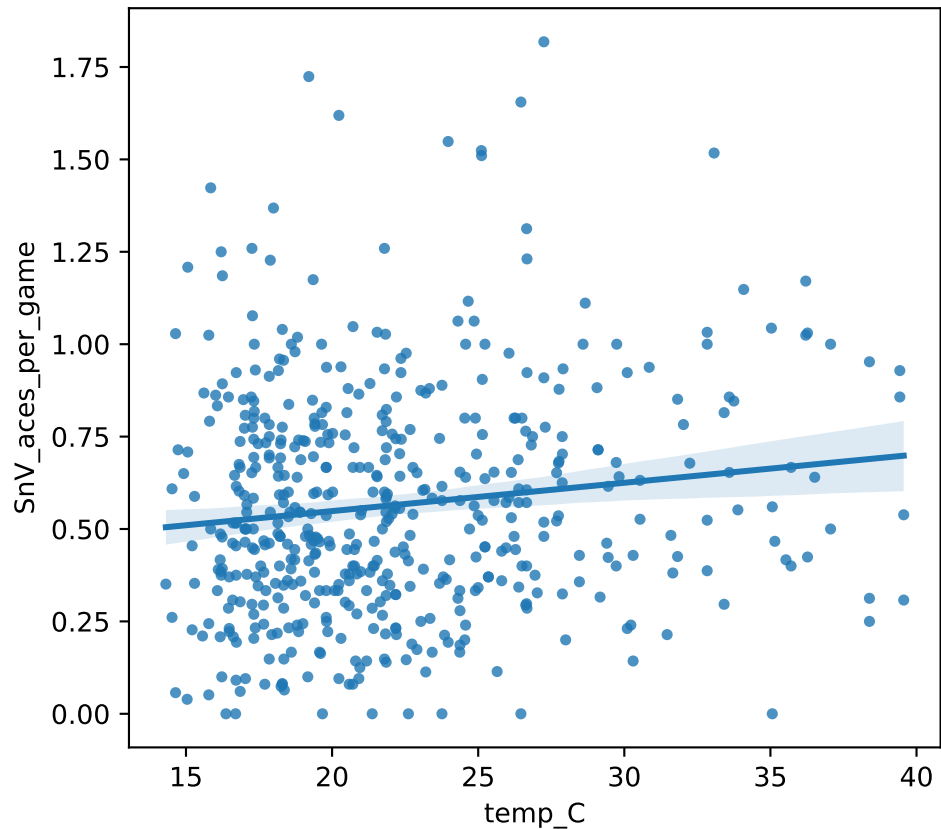
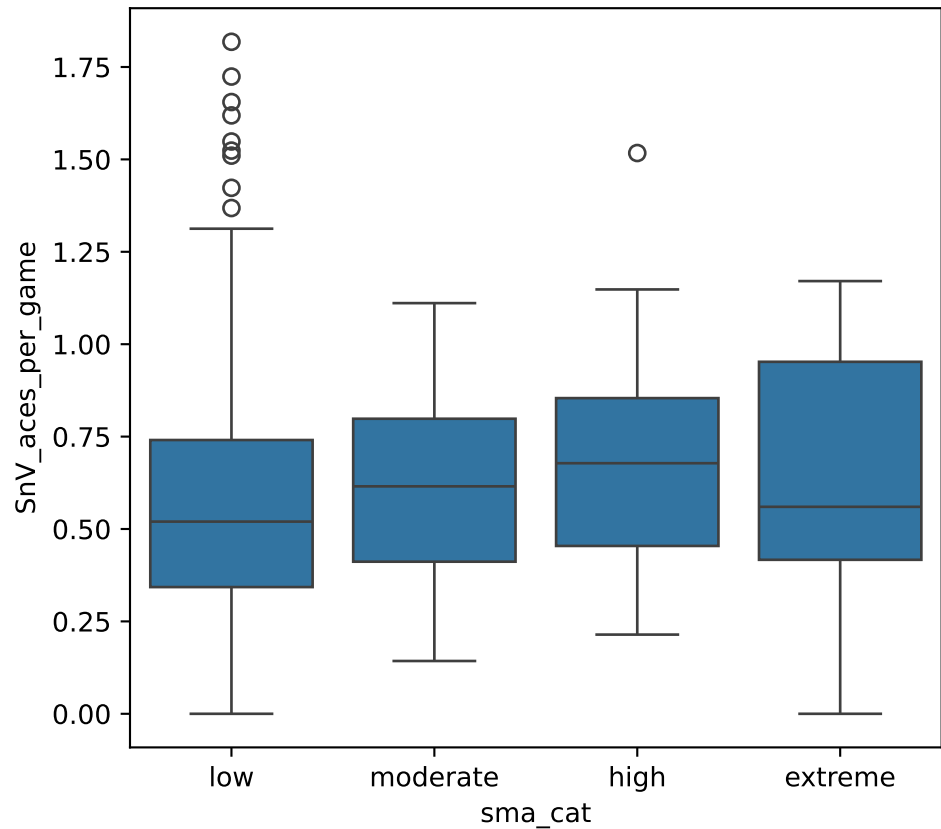
SnV\_aces\_per\_game - wbgt\_cat  
Kruskal p=0.0101, Jonckheere p=NA, Corr p=0.006833254151877194  
SnV\_aces\_per\_game by wbgt\_cat  
SnV\_aces\_per\_game vs wbgt (Spearman r=0.12, p=0.007)



Dunn Post-hoc (p-değerleri)  
SnV\_aces\_per\_game by wbgt\_cat

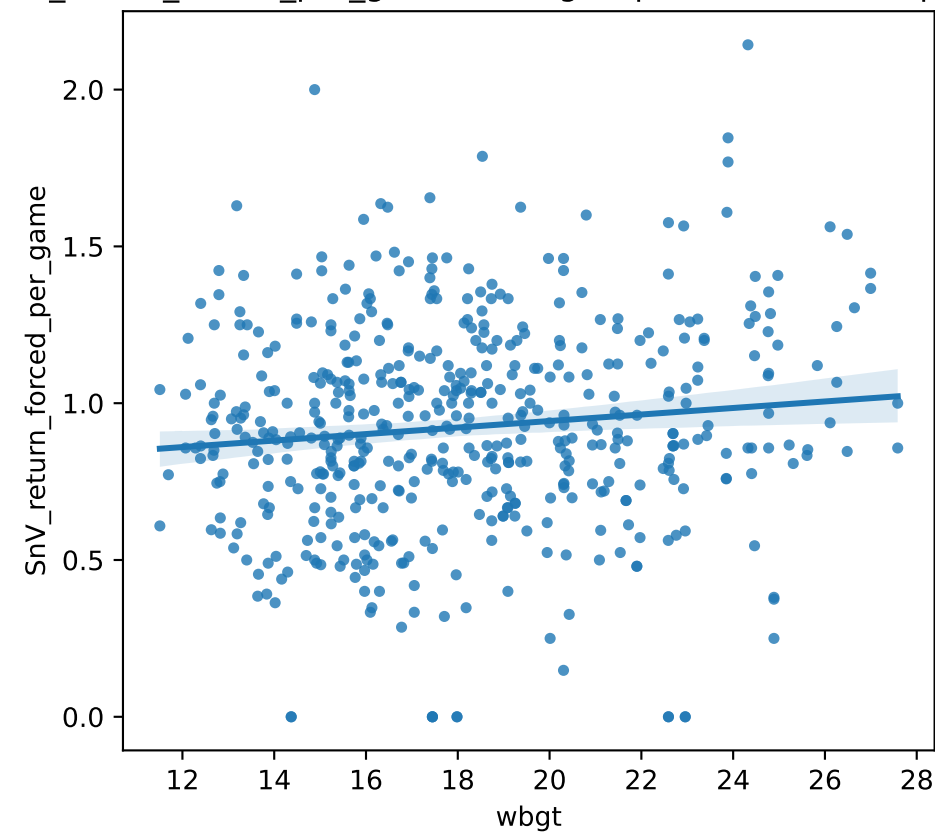
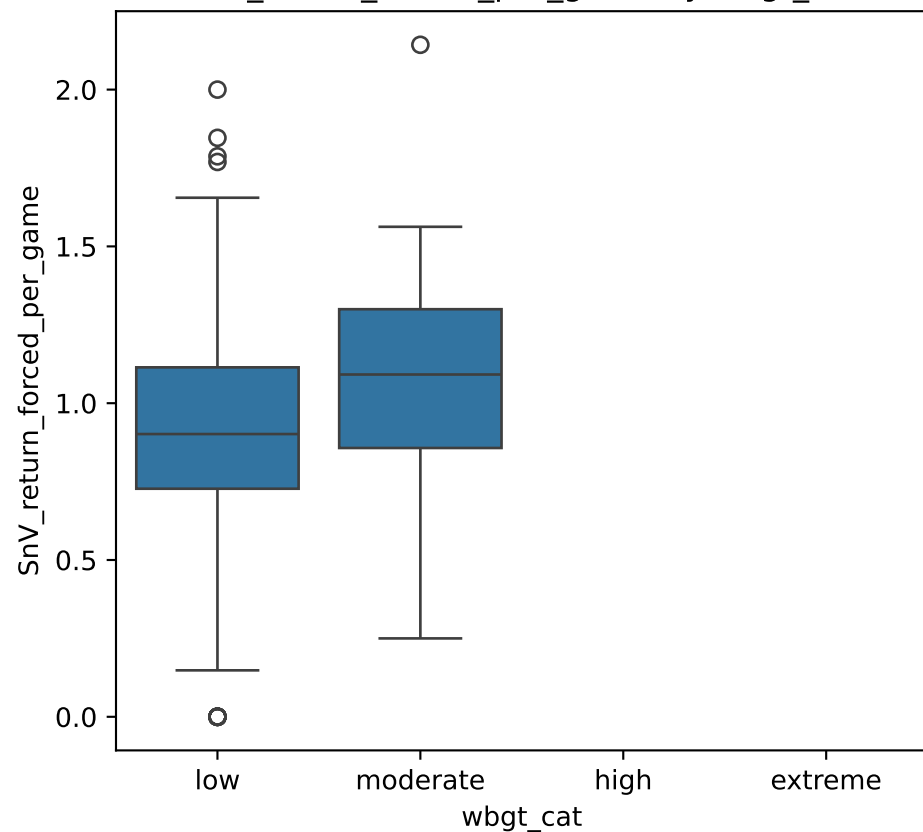
|          | low  | moderate |
|----------|------|----------|
| low      | 1.0  | 0.01     |
| moderate | 0.01 | 1.0      |

SnV\_aces\_per\_game - sma\_cat  
Kruskal p=0.0885, Jonckheere p=NA, Corr p=0.01375192584777475  
SnV\_aces\_per\_game by sma\_cat  
SnV\_aces\_per\_game vs temp\_C (Spearman r=0.11, p=0.014)



Dunn Post-hoc (p-değerleri)  
SnV\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.225 | 1.0      |
| low      | 1.0     | 0.225 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |

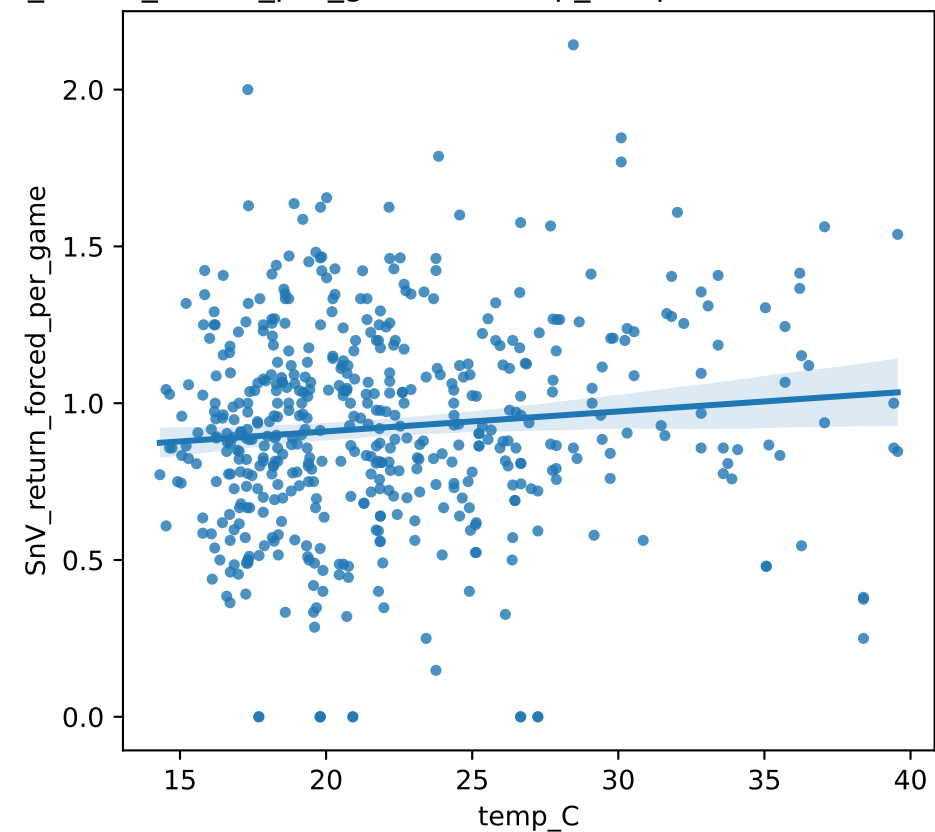
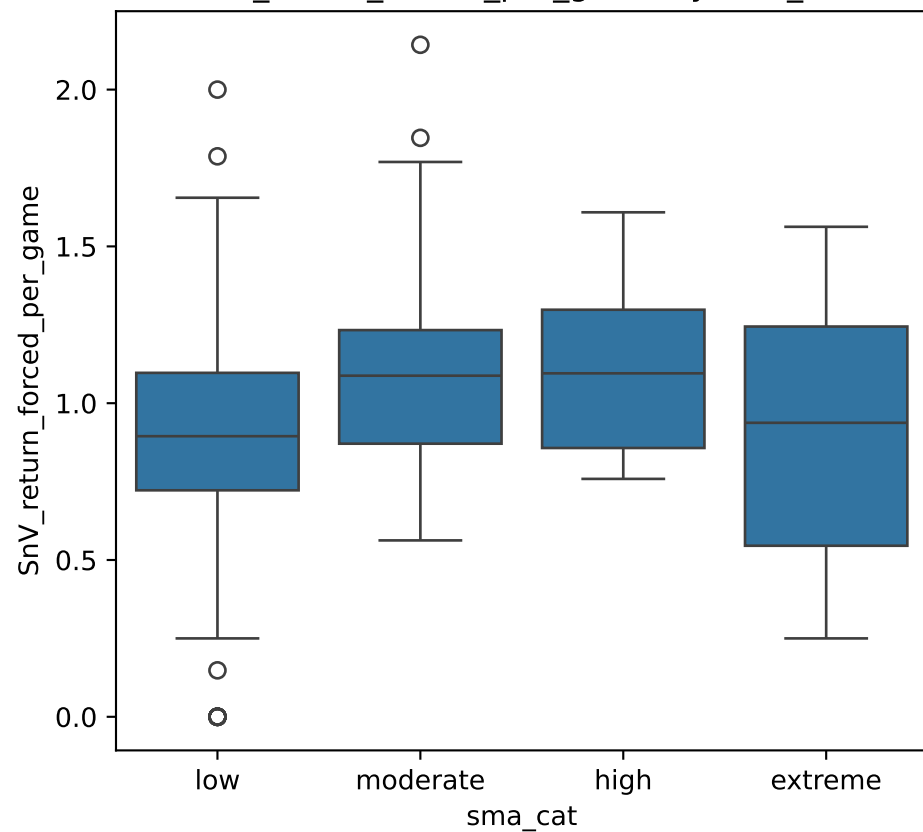


SnV\_return\_forced\_per\_game - wbgmt\_cat  
Kruskal  $p=0.00522$ , Jonckheere  $p=NA$ , Corr  $p=0.016166135801733$

Dunn Post-hoc (p-değerleri)  
SnV\_return\_forced\_per\_game by wbggt\_cat

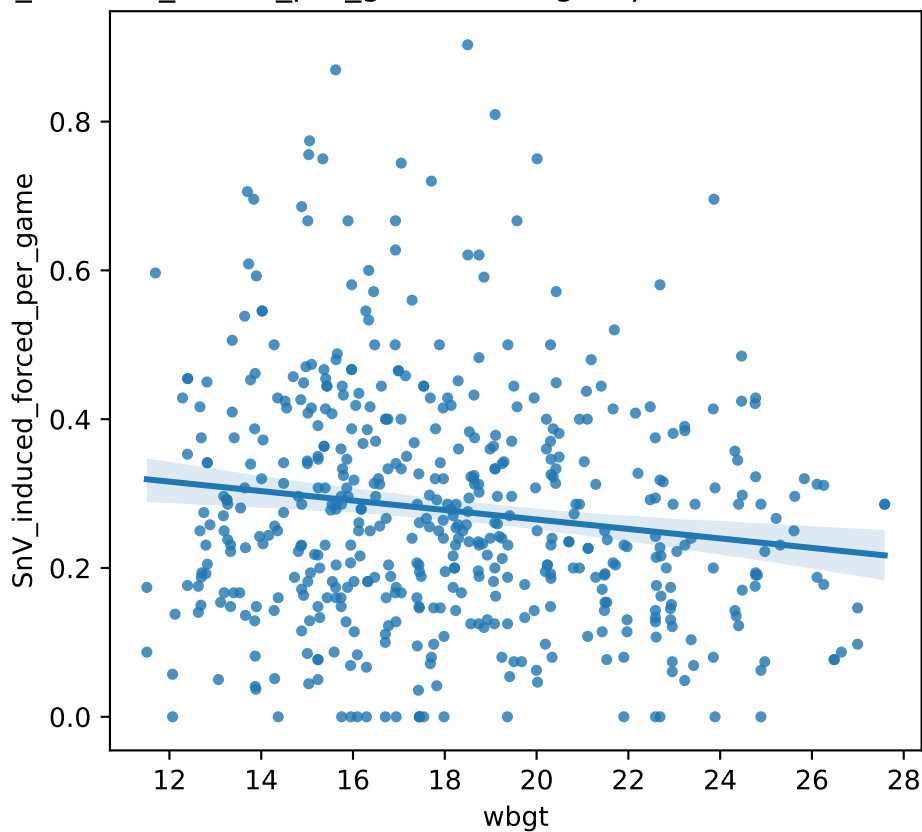
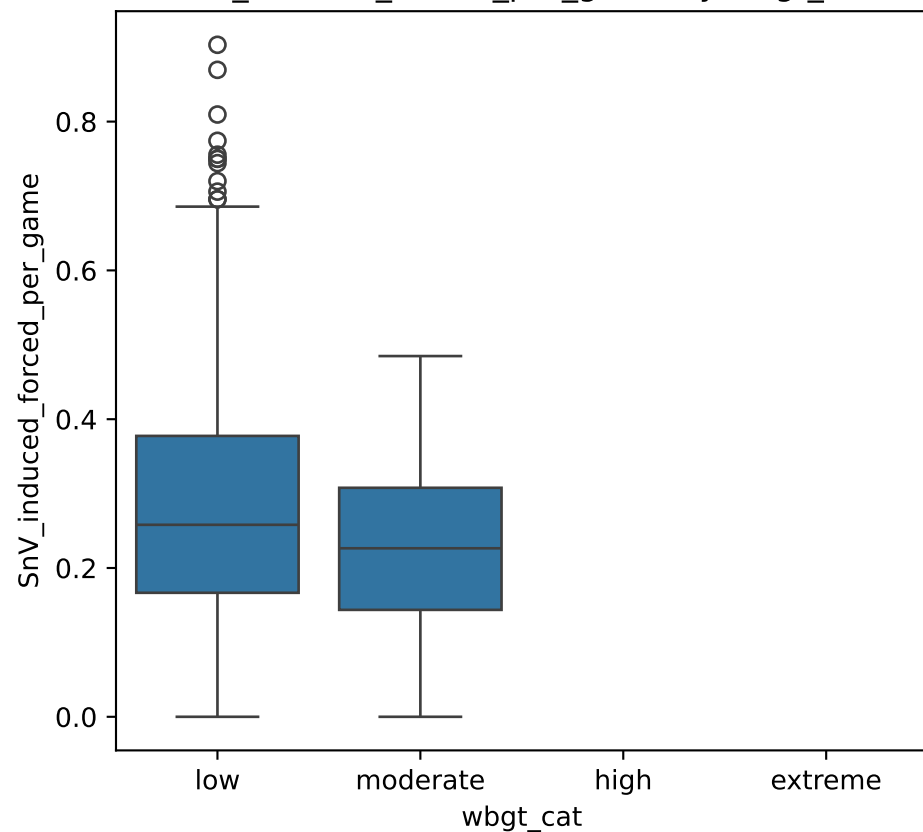
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.005    |
| moderate | 0.005 | 1.0      |





Dunn Post-hoc (p-değerleri)  
SnV\_return\_forced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.785 | 1.0   | 0.87     |
| high     | 0.785   | 1.0   | 0.077 | 1.0      |
| low      | 1.0     | 0.077 | 1.0   | 0.065    |
| moderate | 0.87    | 1.0   | 0.065 | 1.0      |



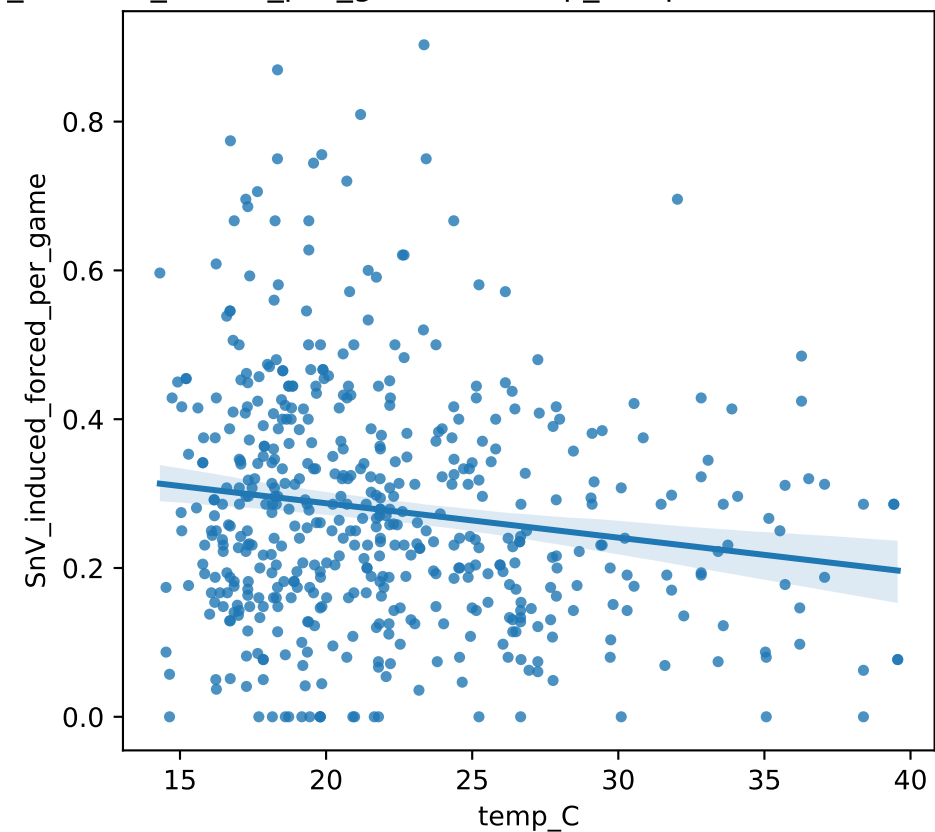
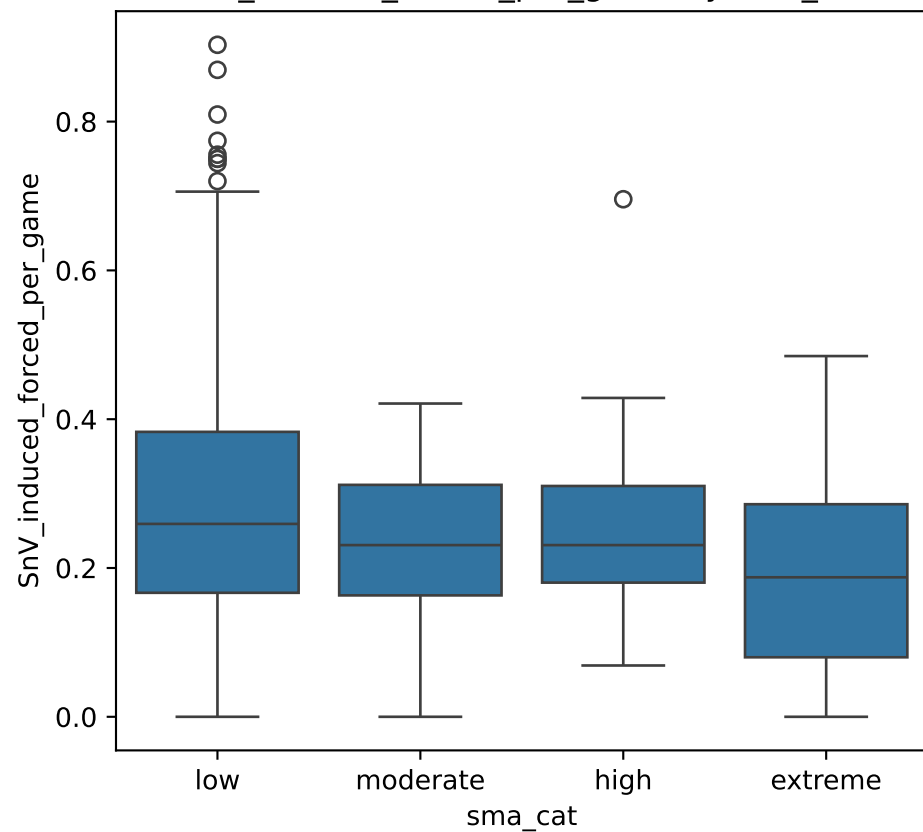
SnV\_induced\_forced\_per\_game - wbggt\_cat

Kruskal p=0.0917, Jonckheere p=NA, Corr p=0.003944000781068312

SnV\_induced\_forced\_per\_game vs wbggt (Spearman r=-0.13, p=0.004)

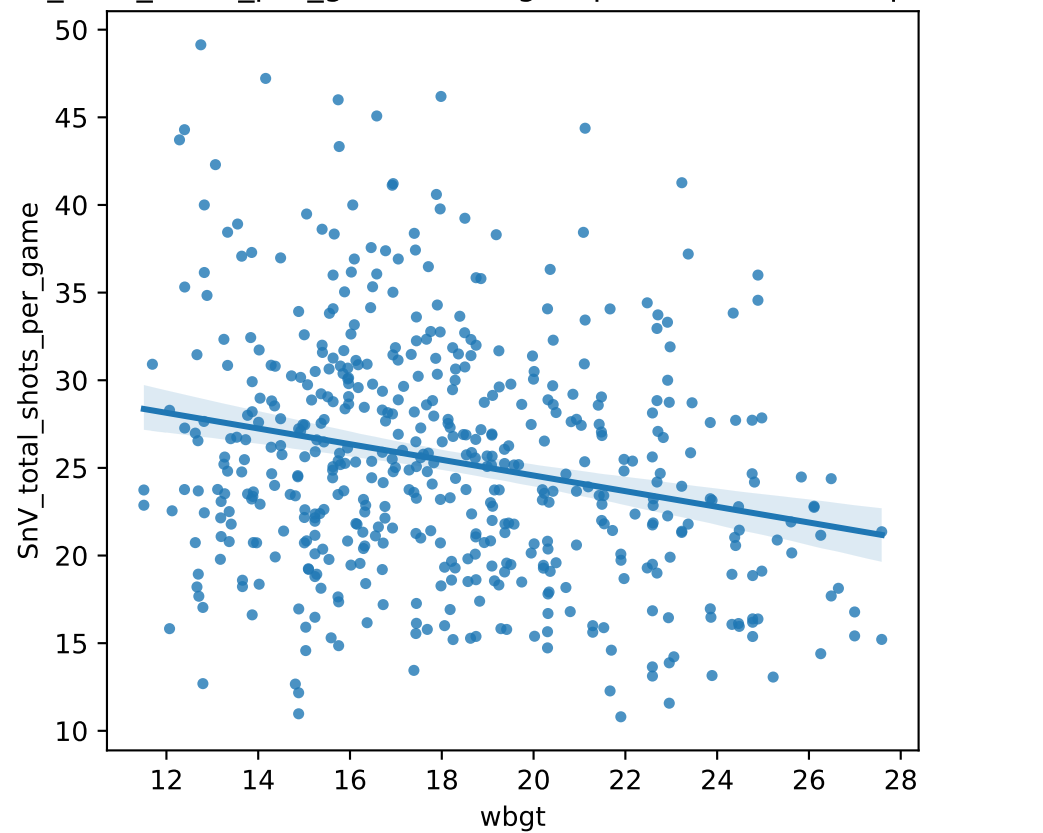
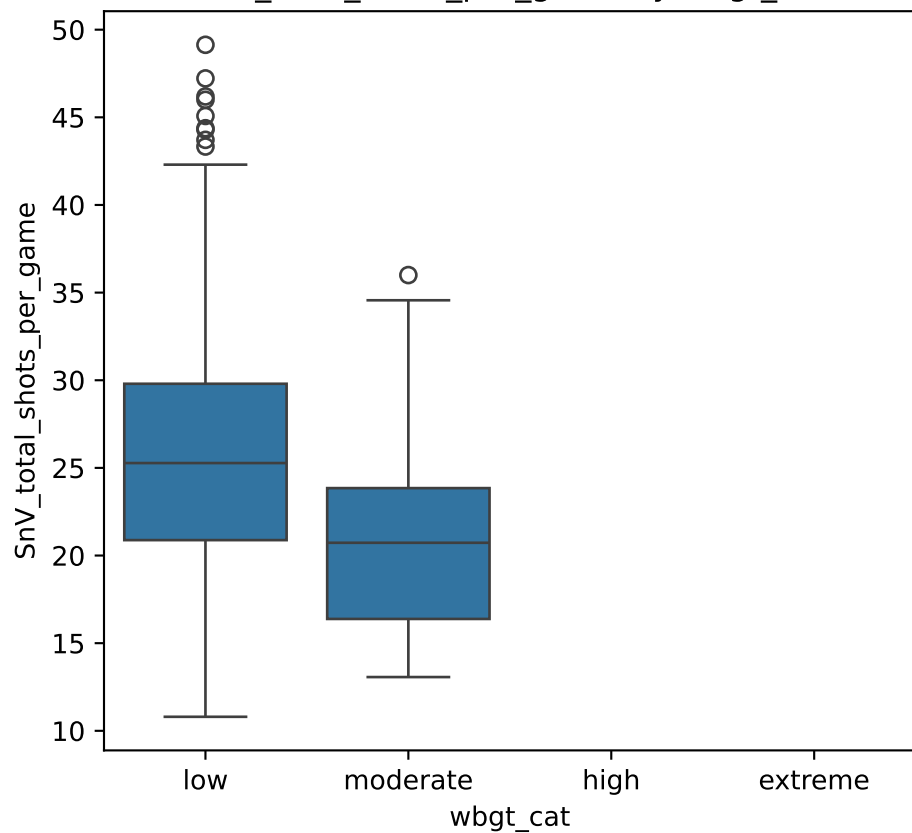
Dunn Post-hoc (p-değerleri)  
SnV\_induced\_forced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.092    |
| moderate | 0.092 | 1.0      |



Dunn Post-hoc (p-değerleri)  
SnV\_induced\_forced\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.168 | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 0.168   | 1.0  | 1.0   | 1.0      |
| moderate | 1.0     | 1.0  | 1.0   | 1.0      |

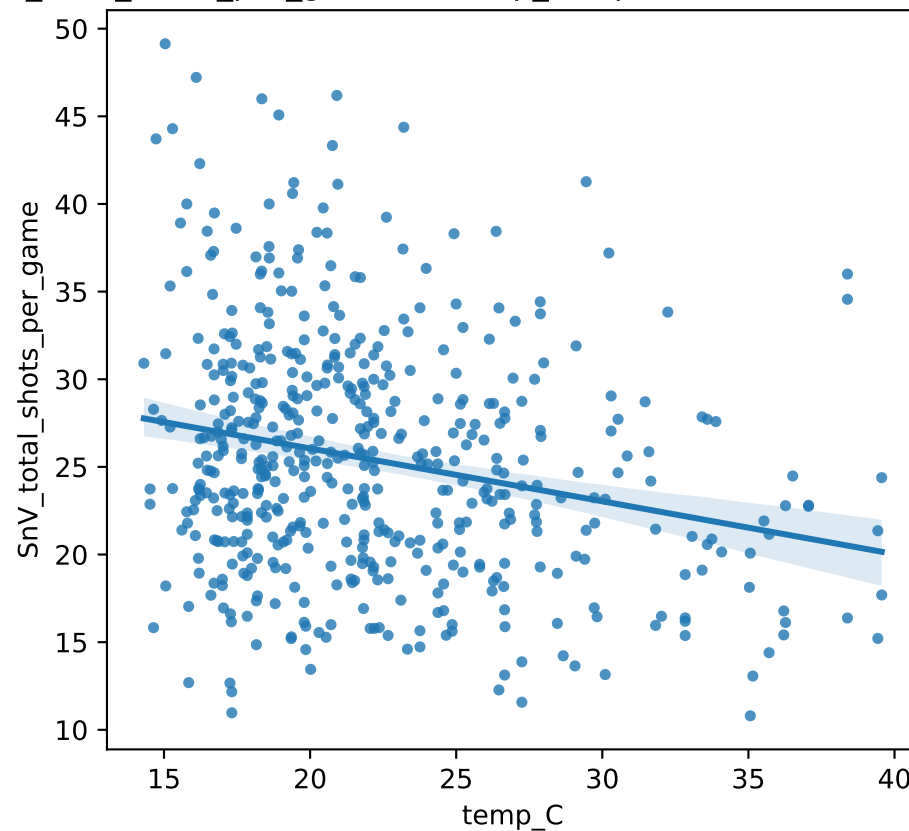
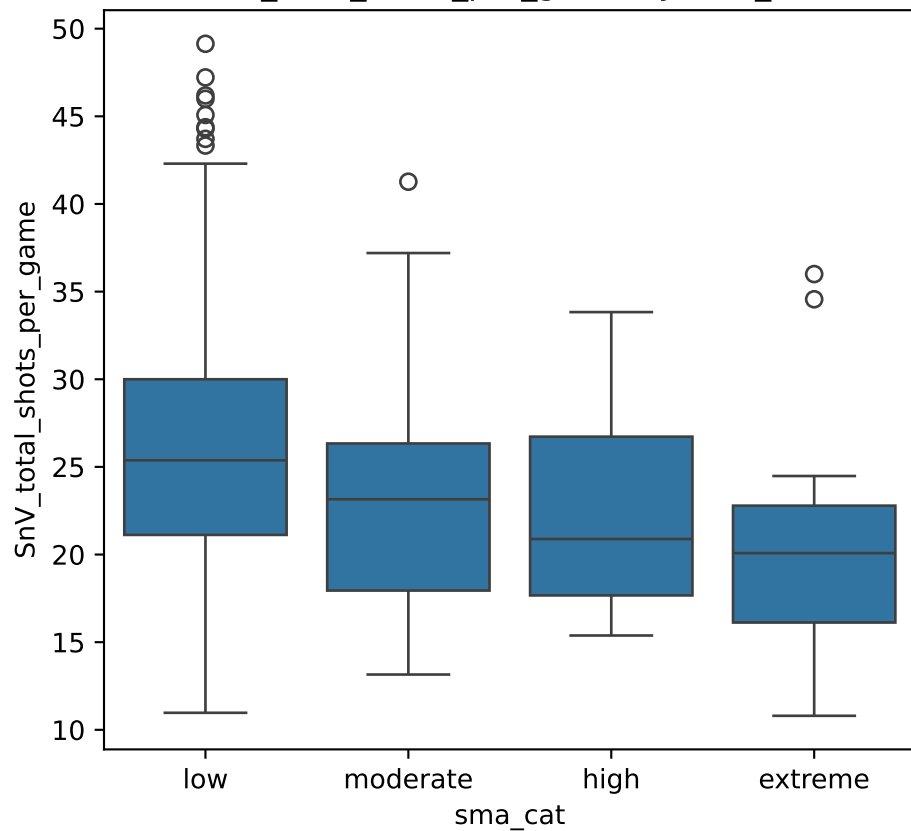


Dunn Post-hoc (p-değerleri)  
SnV\_total\_shots\_per\_game by wbgc\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



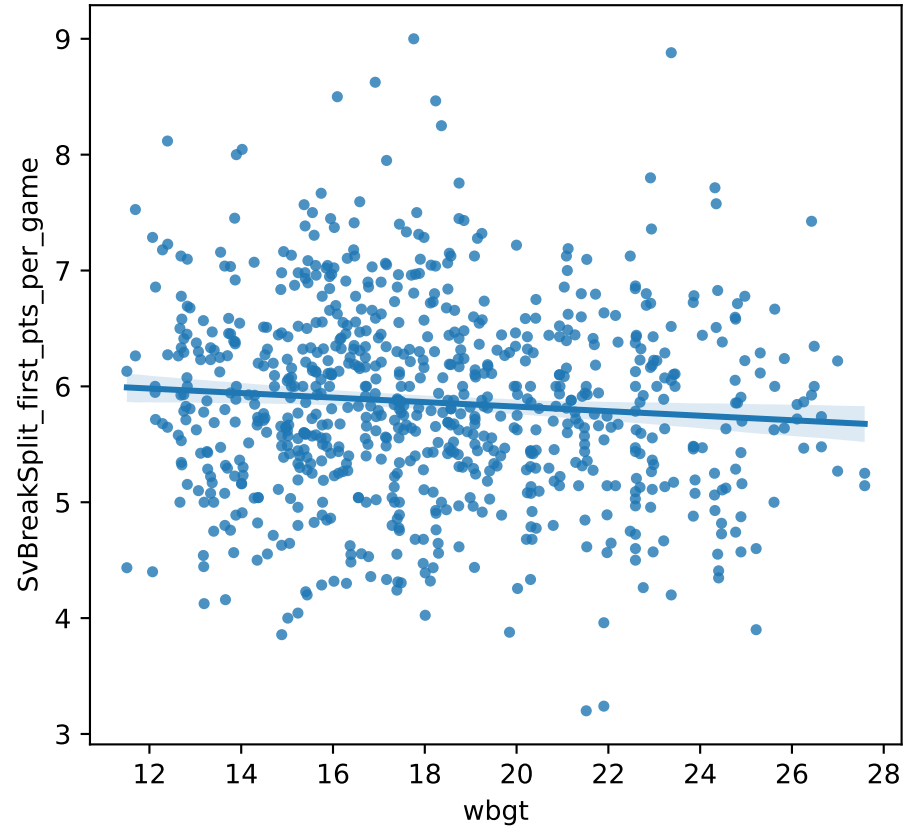
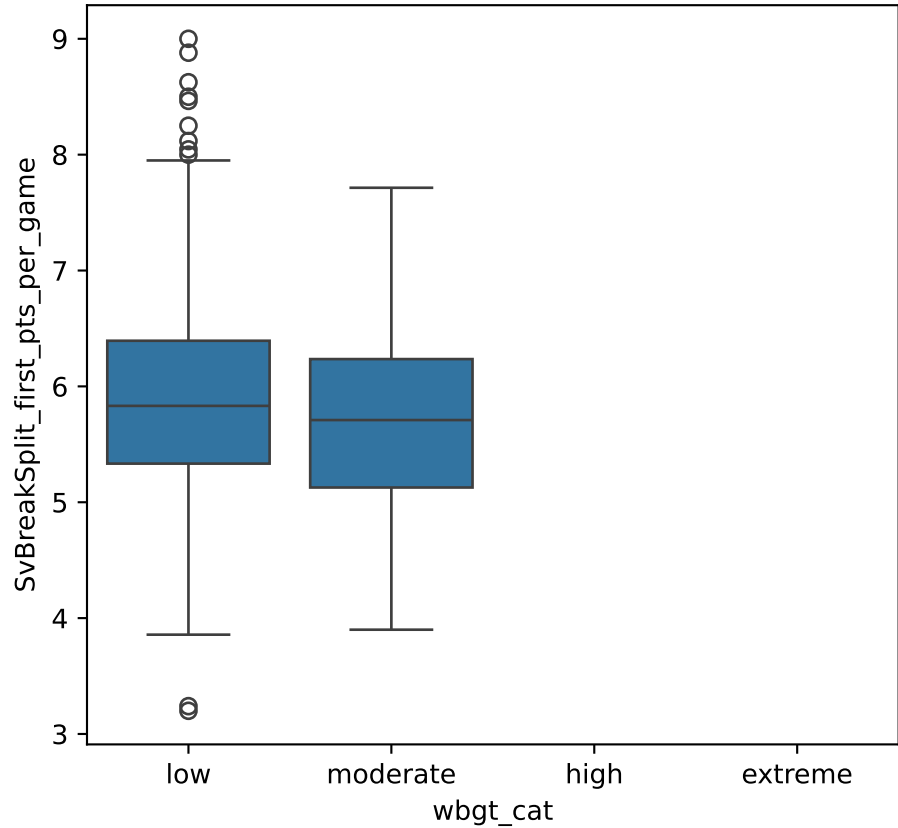
SnV\_total\_shots\_per\_game - sma\_cat  
Kruskal p=2.46e-05, Jonckheere p=NA, Corr p=5.23109904319427e-06  
SnV\_total\_shots\_per\_game by sma\_cat  
SnV\_total\_shots\_per\_game vs temp\_C (Spearman r=-0.20, p=0.000)



Dunn Post-hoc (p-değerleri)  
SnV\_total\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.001 | 0.929    |
| high     | 1.0     | 1.0   | 0.069 | 1.0      |
| low      | 0.001   | 0.069 | 1.0   | 0.231    |
| moderate | 0.929   | 1.0   | 0.231 | 1.0      |

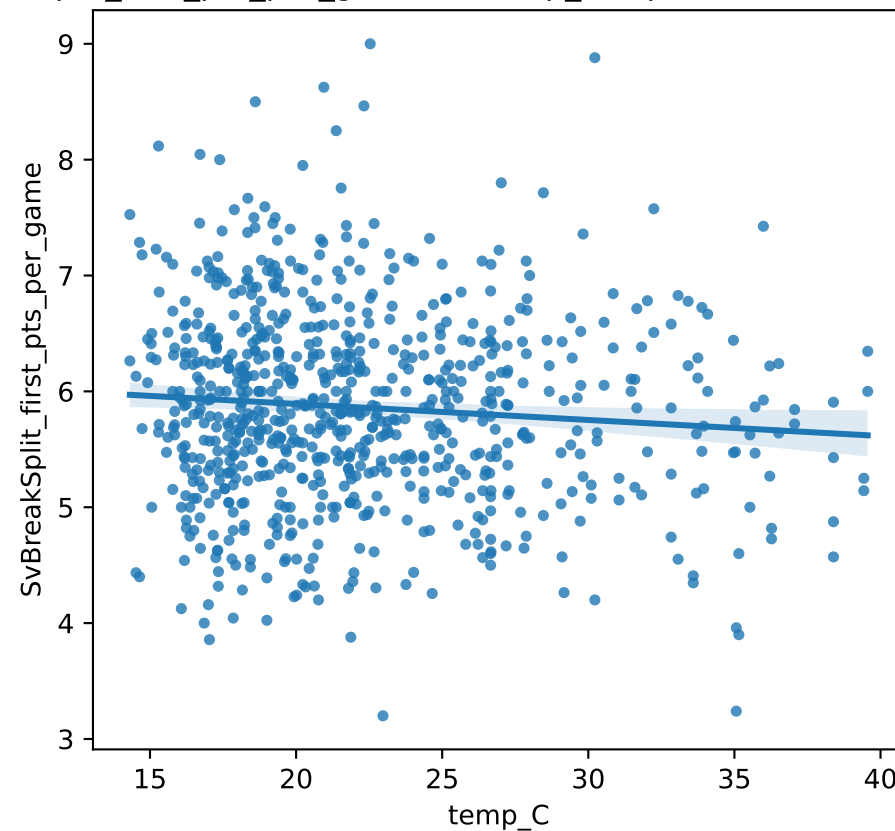
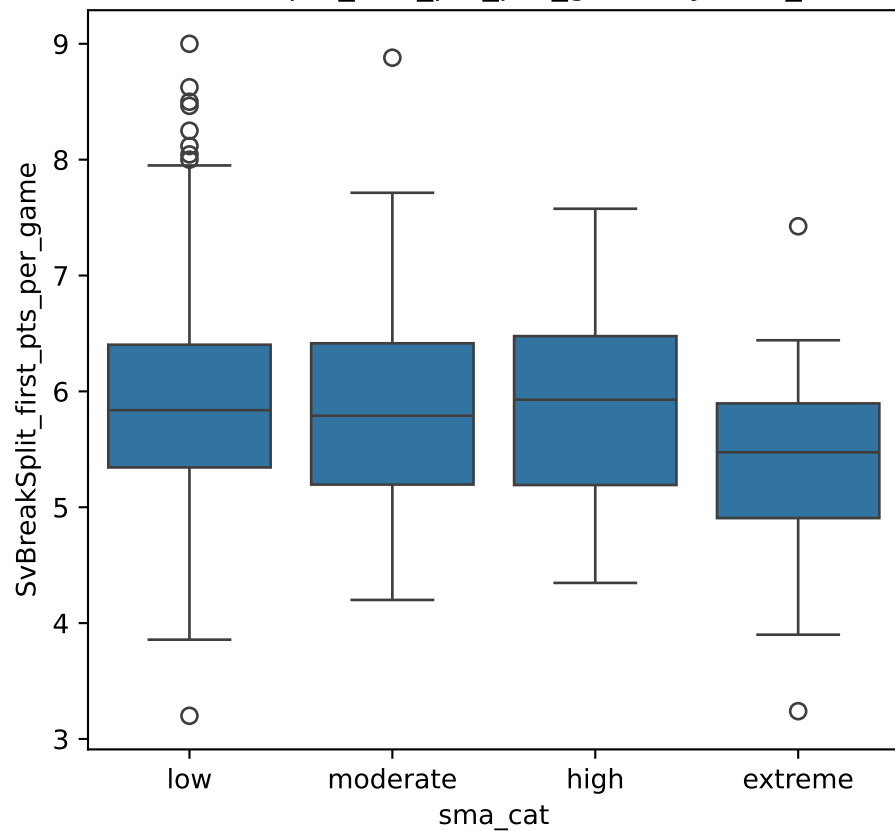
SvBreakSplit\_first\_pts\_per\_game - wbgt\_cat  
Kruskal p=0.132, Jonckheere p=NA, Corr p=0.027454604057148595  
SvBreakSplit\_first\_pts\_per\_game by wbgt\_cat   SvBreakSplit\_first\_pts\_per\_game vs wbgt (Spearman r=-0.08, p=0.027)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_pts\_per\_game by wbggt\_cat

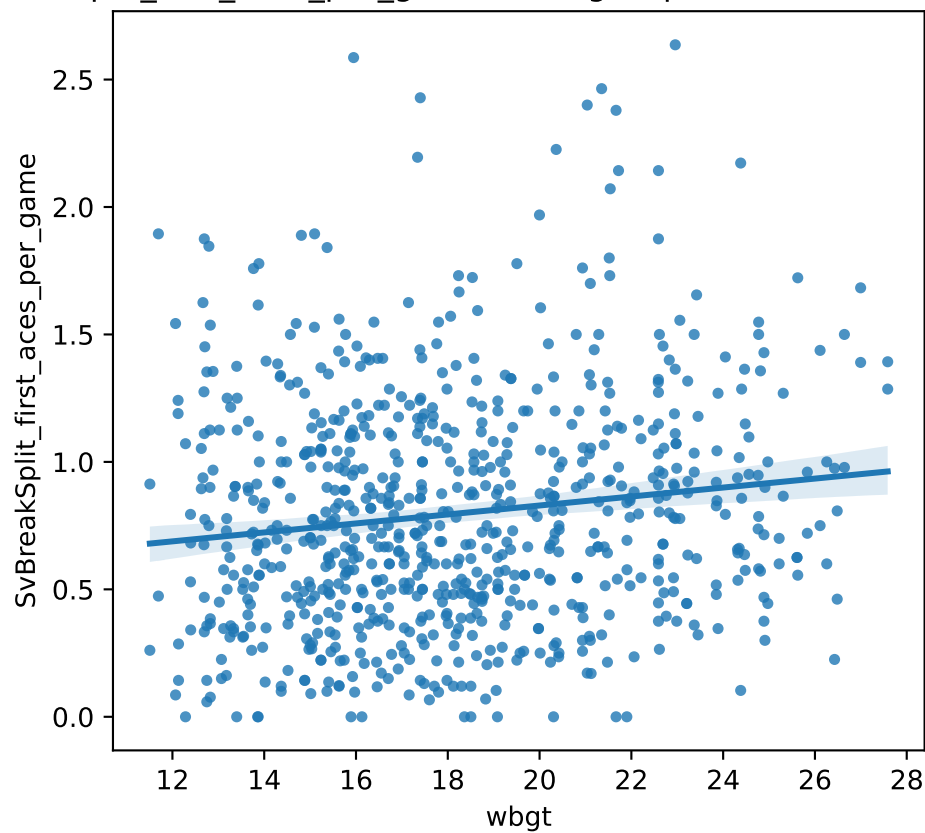
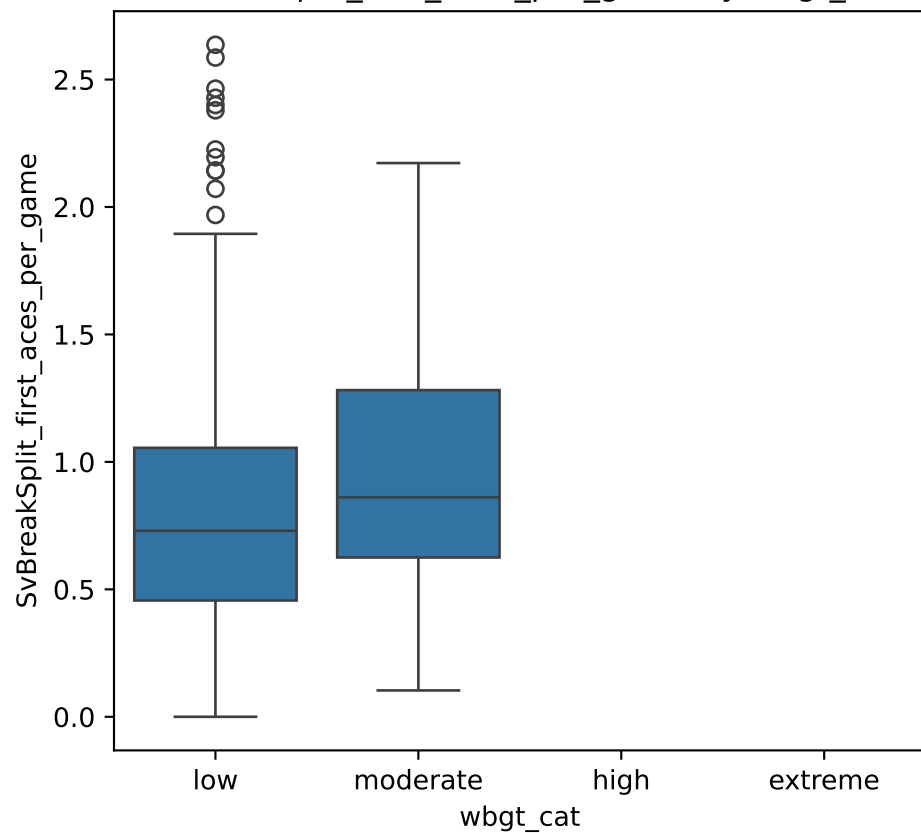
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.132    |
| moderate | 0.132 | 1.0      |

SvBreakSplit\_first\_pts\_per\_game - sma\_cat  
Kruskal p=0.0469, Jonckheere p=NA, Corr p=0.05011322415523674  
SvBreakSplit\_first\_pts\_per\_game by sma\_cat SvBreakSplit\_first\_pts\_per\_game vs temp\_C (Spearman r=-0.07, p=0.050)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_pts\_per\_game by sma\_cat

|          | extreme | high | low  | moderate |
|----------|---------|------|------|----------|
| extreme  | 1.0     | 0.28 | 0.03 | 0.458    |
| high     | 0.28    | 1.0  | 1.0  | 1.0      |
| low      | 0.03    | 1.0  | 1.0  | 1.0      |
| moderate | 0.458   | 1.0  | 1.0  | 1.0      |

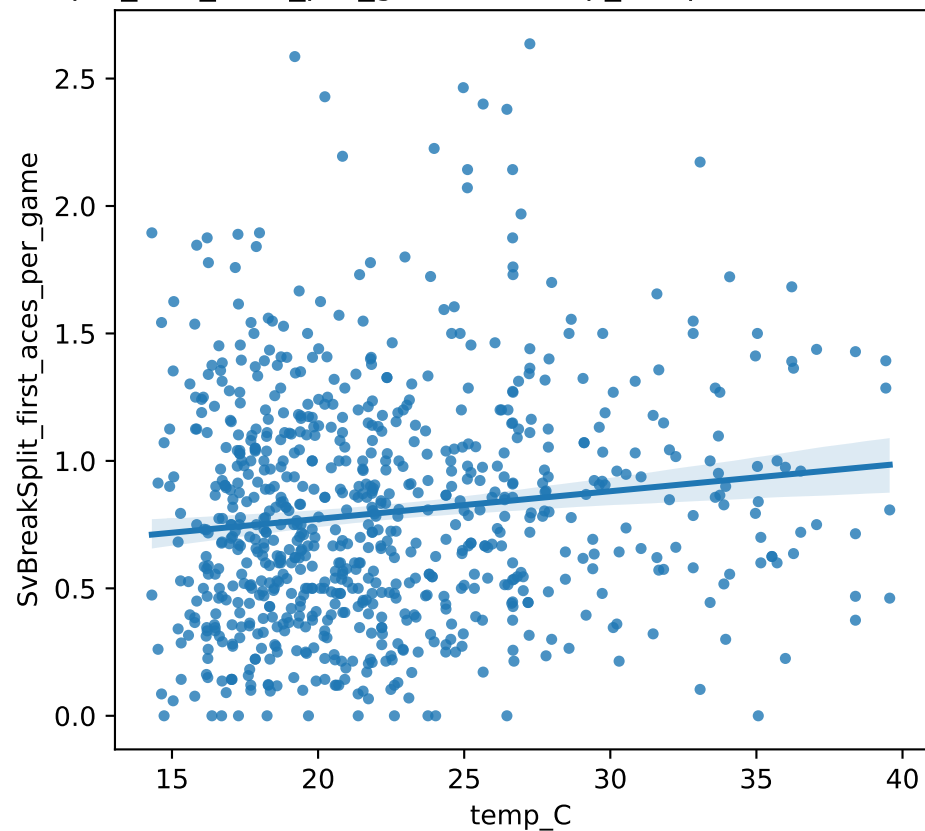
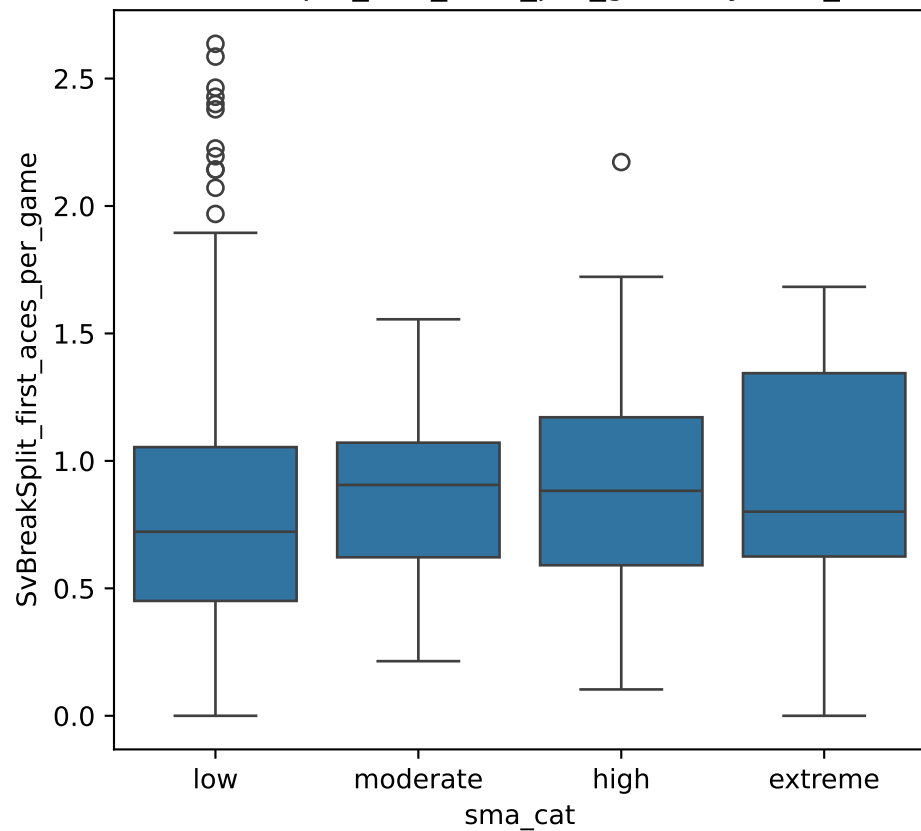


Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_aces\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.013    |
| moderate | 0.013 | 1.0      |

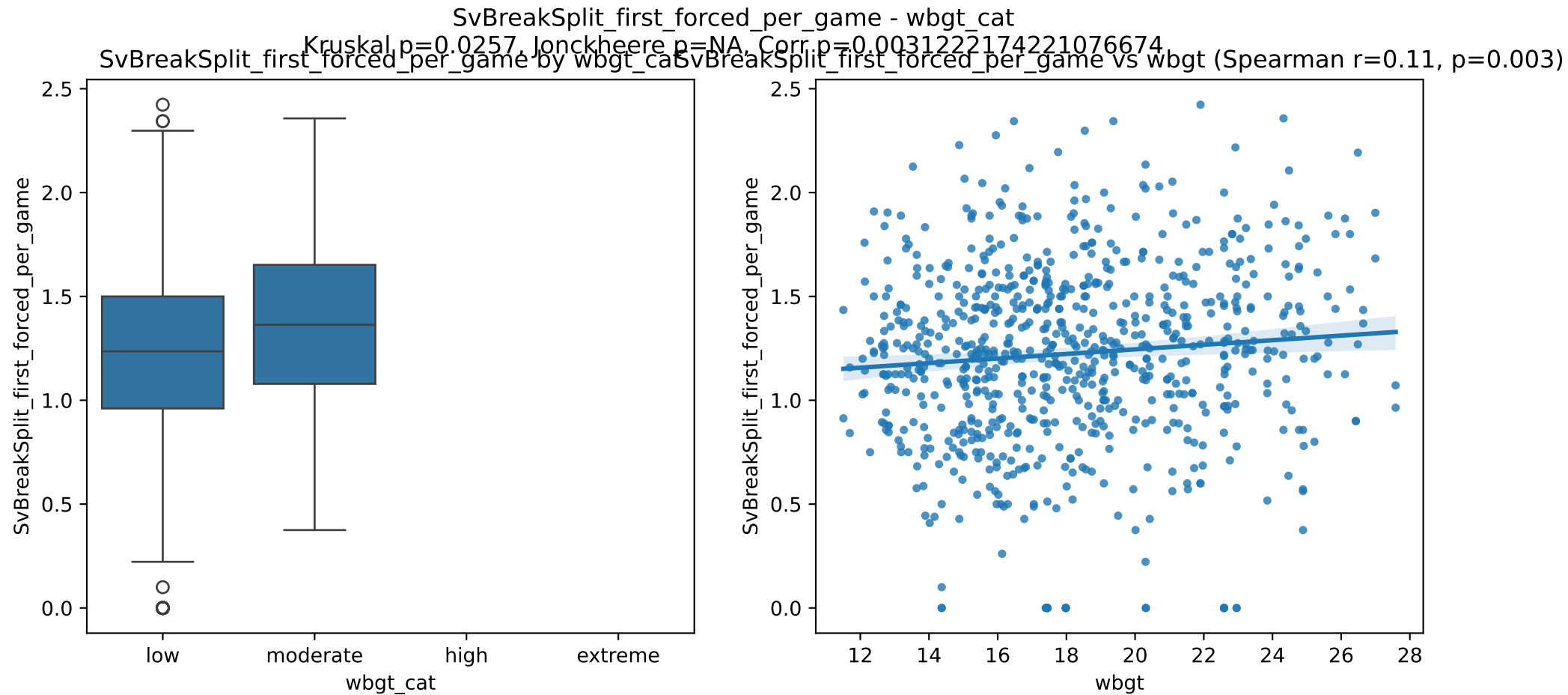


SvBreakSplit\_first\_aces\_per\_game - sma\_cat  
Kruskal p=0.0409, Jonckheere p=NA, Corr.p=0.0013314633079672678  
SvBreakSplit\_first\_aces\_per\_game by sma\_cat SvBreakSplit\_first\_aces\_per\_game vs temp\_C (Spearman r=0.11, p=0.001)



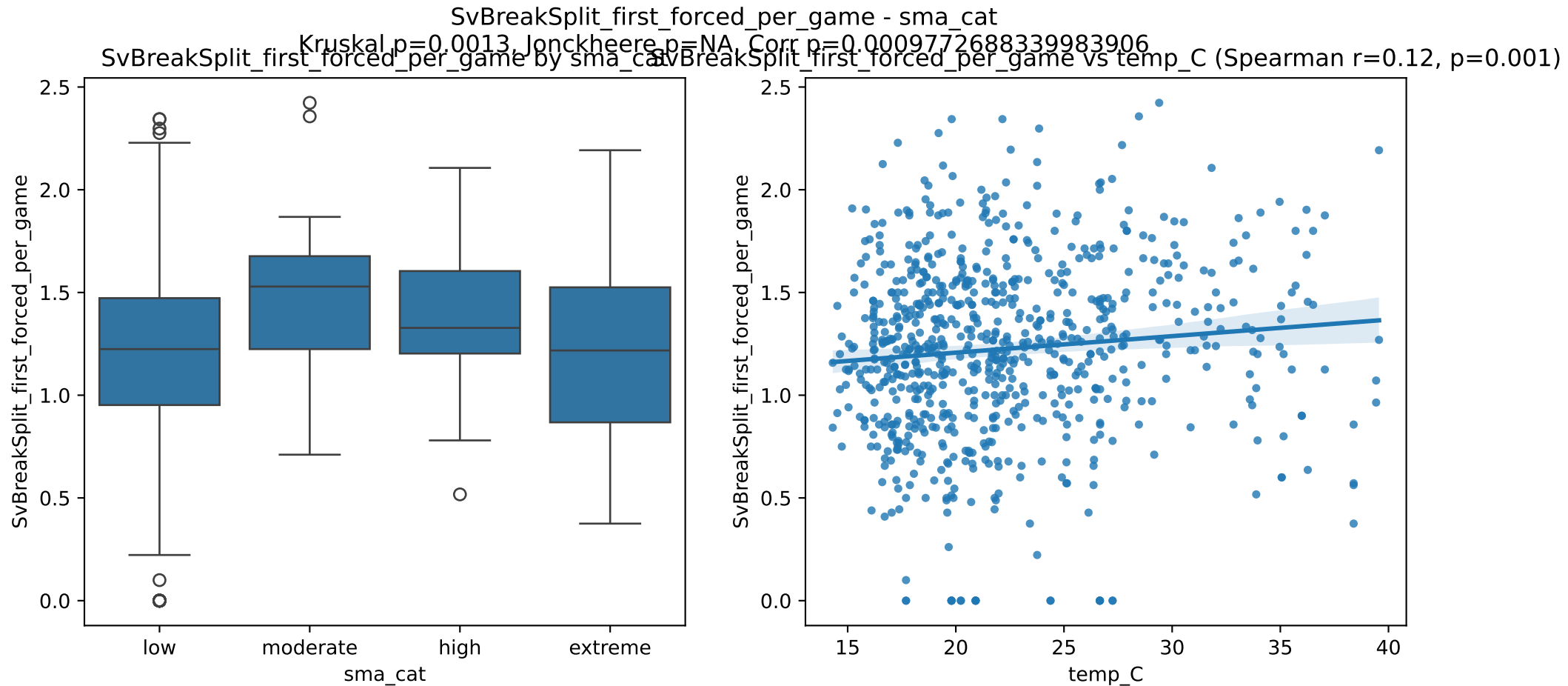
Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.675 | 1.0      |
| high     | 1.0     | 1.0   | 0.235 | 1.0      |
| low      | 0.675   | 0.235 | 1.0   | 0.819    |
| moderate | 1.0     | 1.0   | 0.819 | 1.0      |



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_forced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.026    |
| moderate | 0.026 | 1.0      |



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_forced\_per\_game by sma\_cat

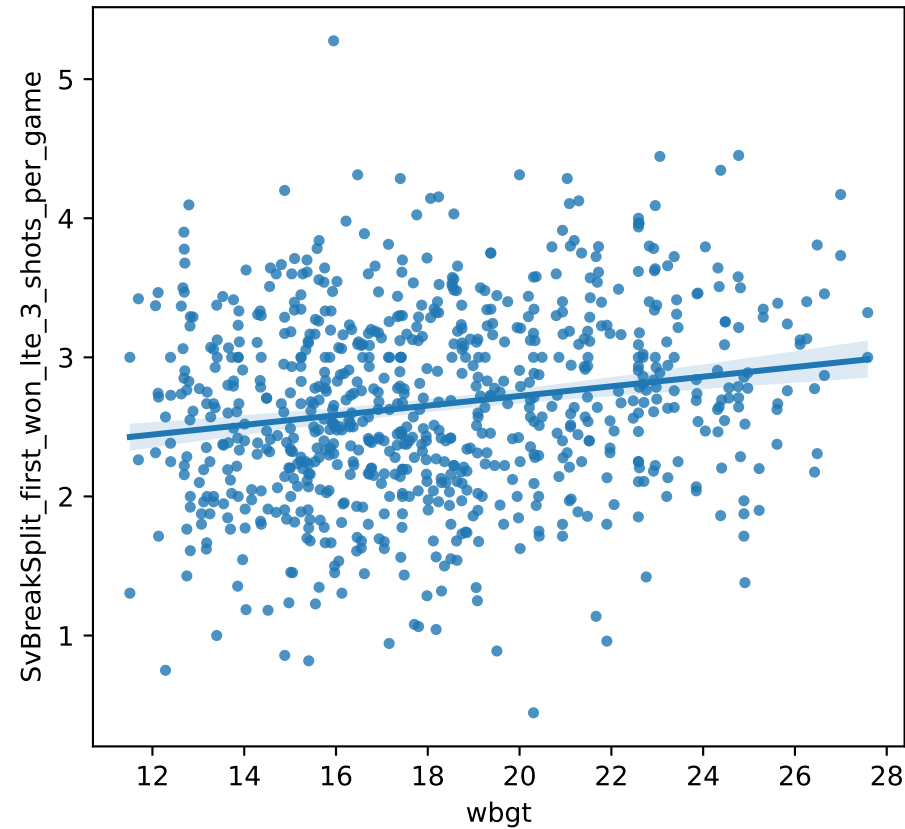
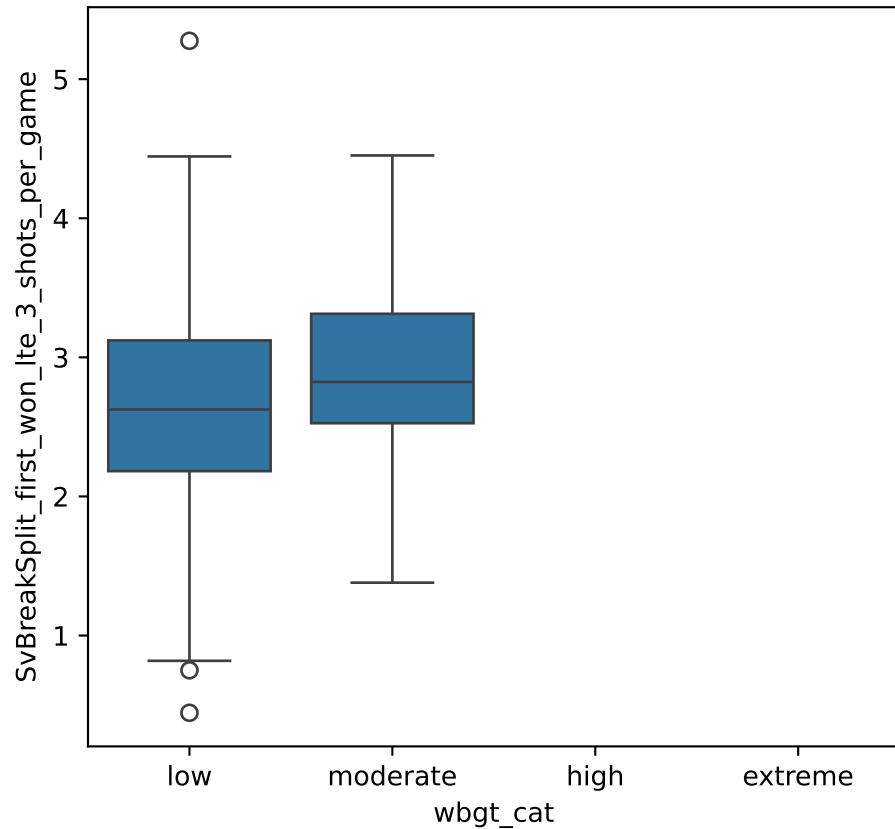
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.991 | 1.0   | 0.096    |
| high     | 0.991   | 1.0   | 0.251 | 1.0      |
| low      | 1.0     | 0.251 | 1.0   | 0.003    |
| moderate | 0.096   | 1.0   | 0.003 | 1.0      |

SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game - wbgt\_cat

Kruskal p=0.00604, Jonckheere p=NA, Corr p=1.8851080416408878e-06

SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game by wbgt\_cat

SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game vs wbgt (Spearman r=0.17, p=0.00604)



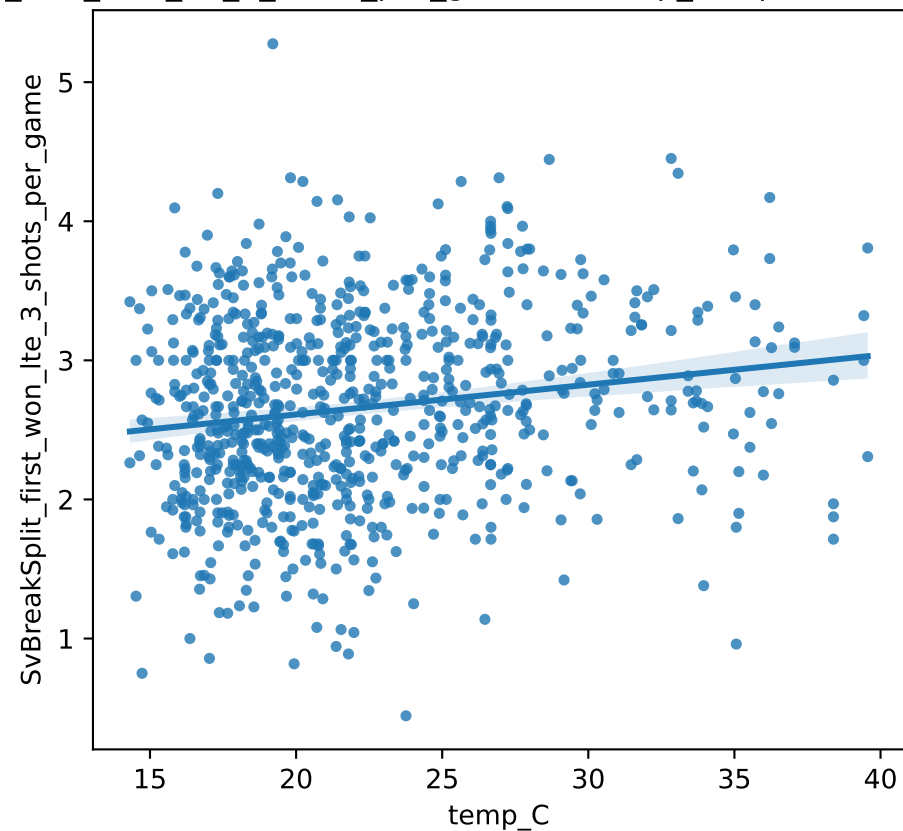
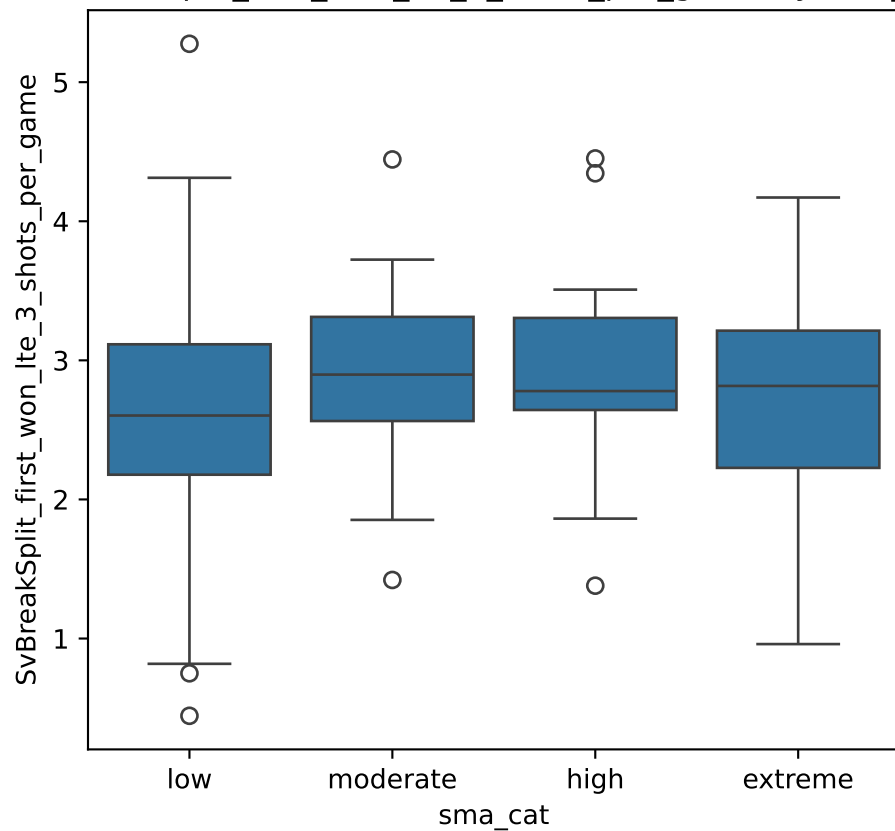
Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.006    |
| moderate | 0.006 | 1.0      |



Kruskal p=0.0126, Jonckheere p=NA, Corr p=2.0070473848670347e-06

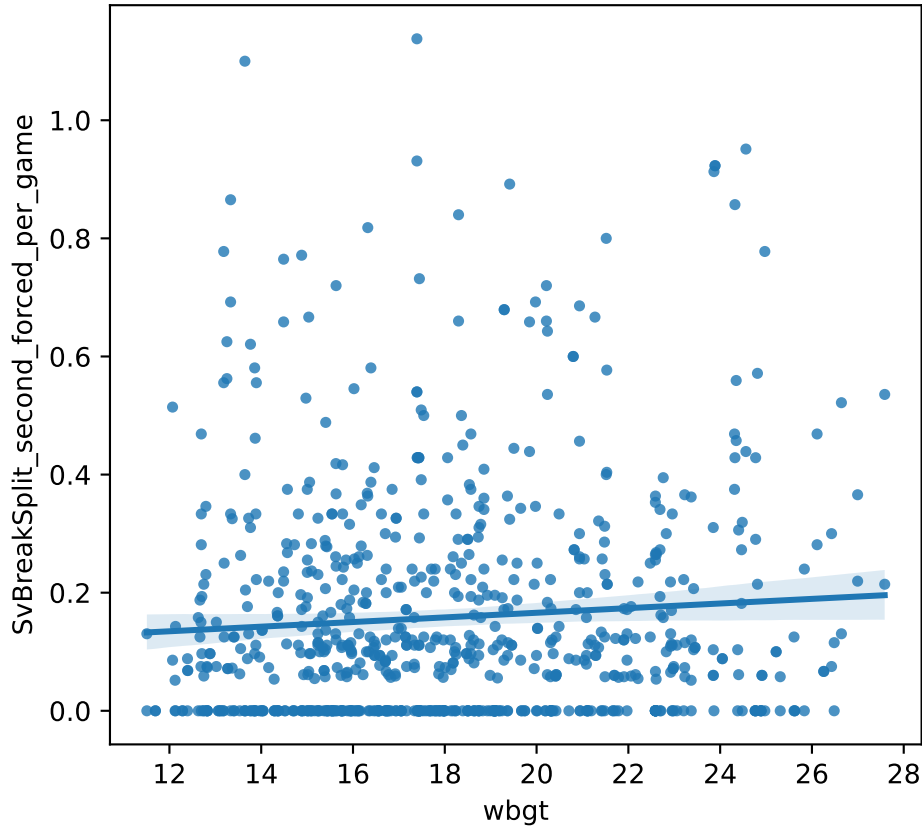
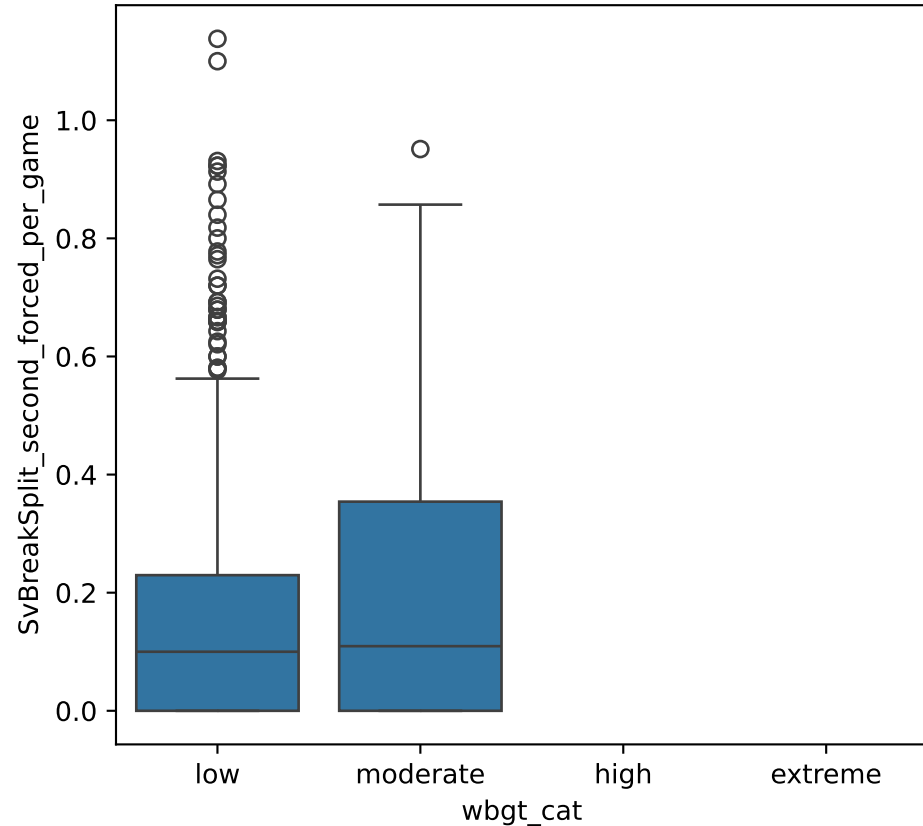
by Break Split first won lte 3 shots\_per\_game vs temp\_C (Spearman  $r=0.17$ ,  $p=0.0$ )



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.099 | 1.0      |
| low      | 1.0     | 0.099 | 1.0   | 0.16     |
| moderate | 1.0     | 1.0   | 0.16  | 1.0      |

SvBreakSplit\_second\_forced\_per\_game - wbgmt\_cat  
Kruskal p=0.115, Jonckheere p=NA, Corr p=0.05726917833151388  
SvBreakSplit\_second\_forced\_per\_game by wbgmt\_cat  
SvBreakSplit\_second\_forced\_per\_game vs wbgmt (Spearman r=0.07, p=0.057)

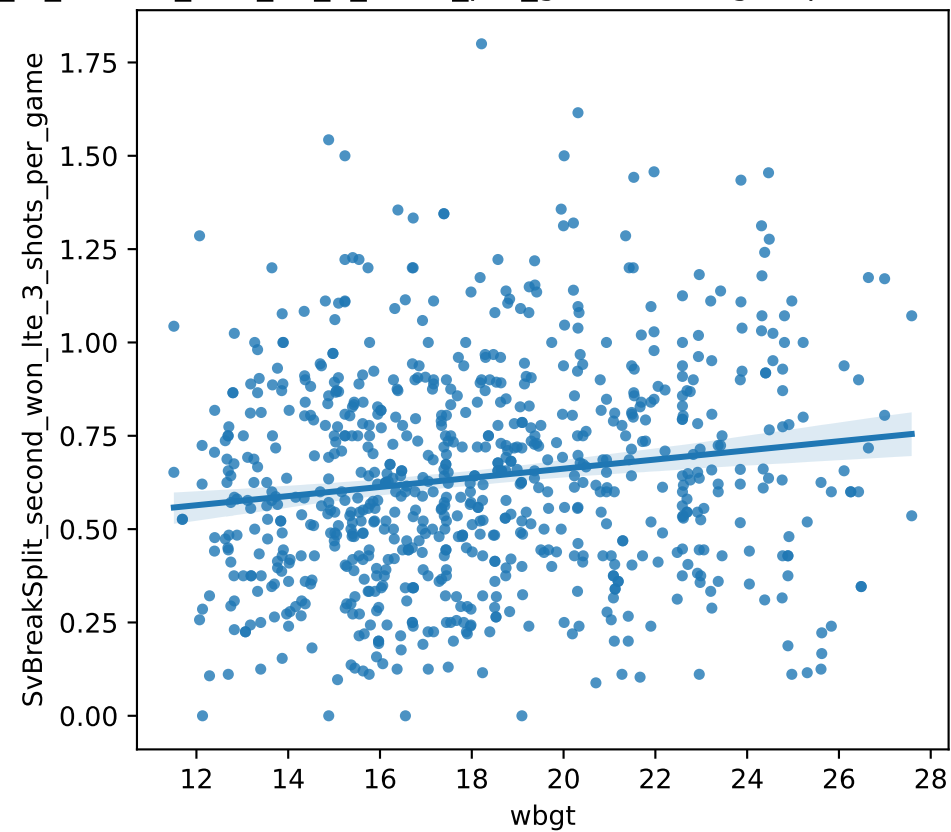
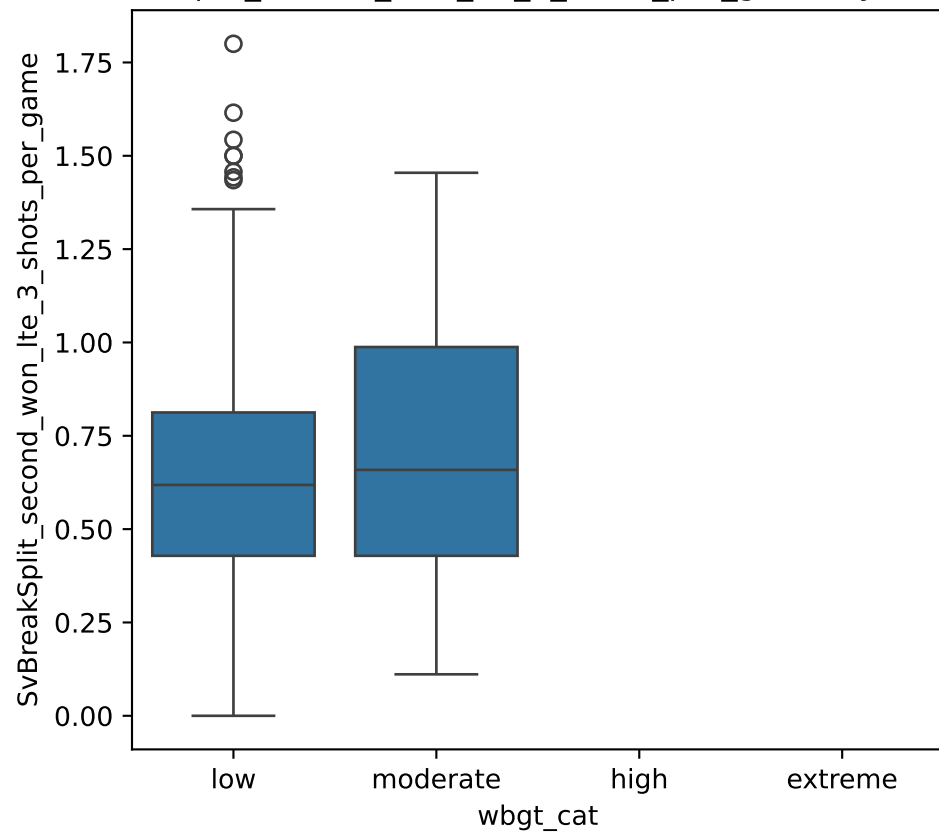


Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_forced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.115    |
| moderate | 0.115 | 1.0      |

Kruskal p=0.111, Jonckheere p=NA, Corr p=3.41711031621789e-05

SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game vs wbggt (Spearman  $r=0.15$ ,  $p=0.0$ )



# Dunn Post-hoc (p-değerleri)

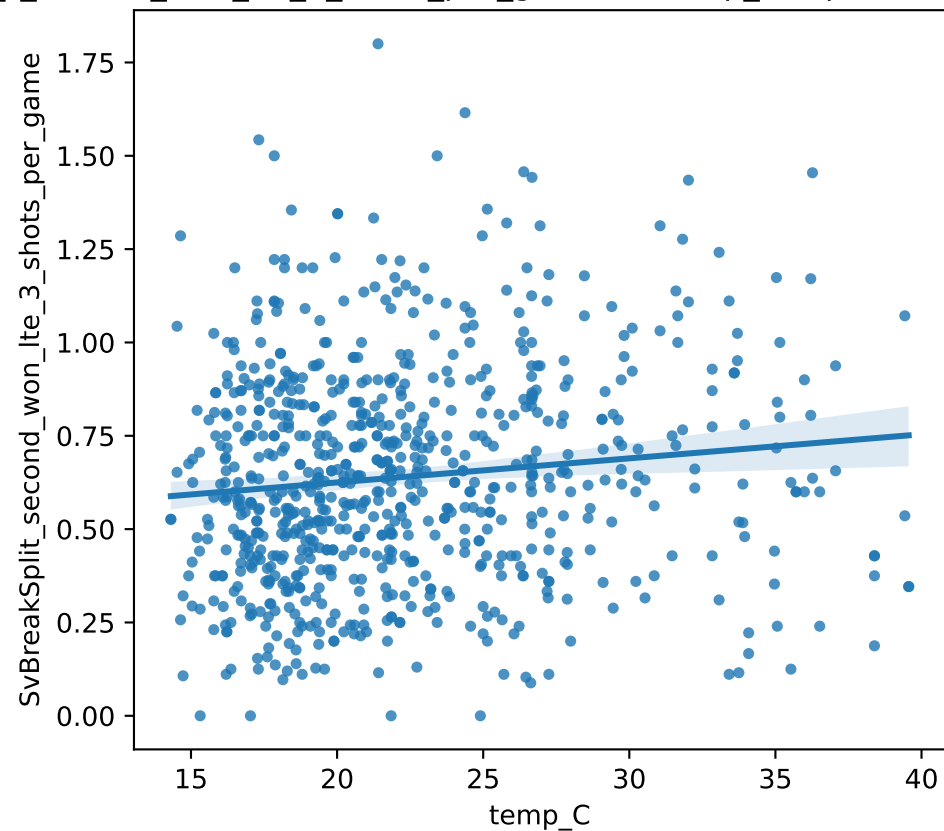
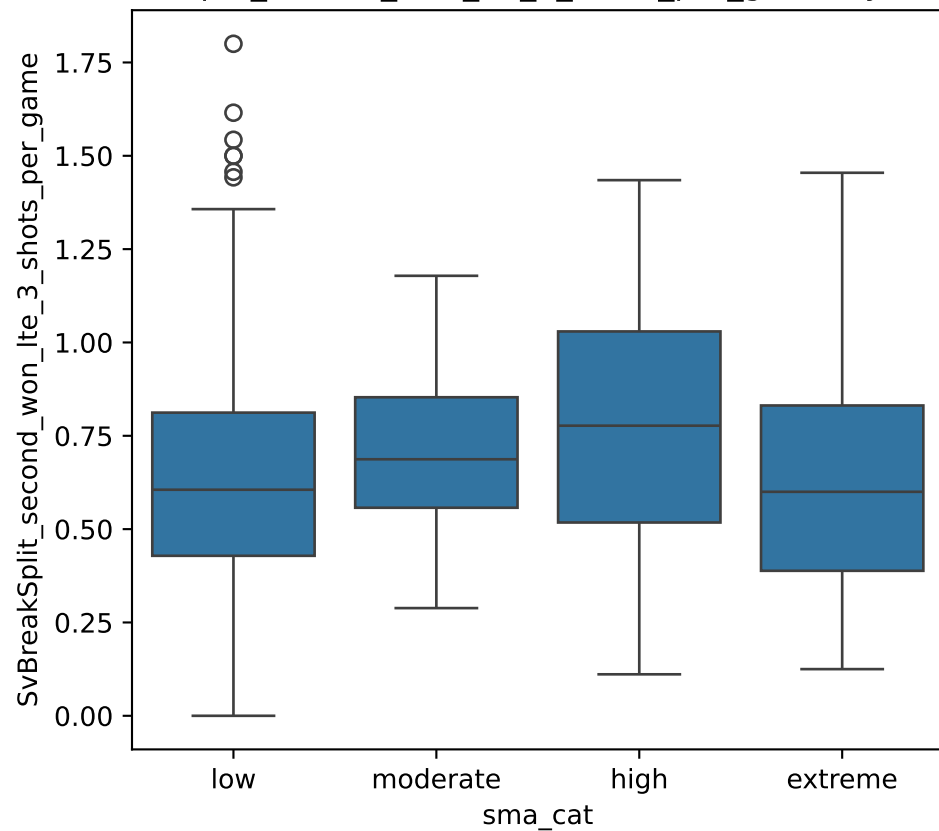
SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.111    |
| moderate | 0.111 | 1.0      |

SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game - sma\_cat

Kruskal p=0.0244, Jonckheere p=NA, Corr p=0.00025127152558081207

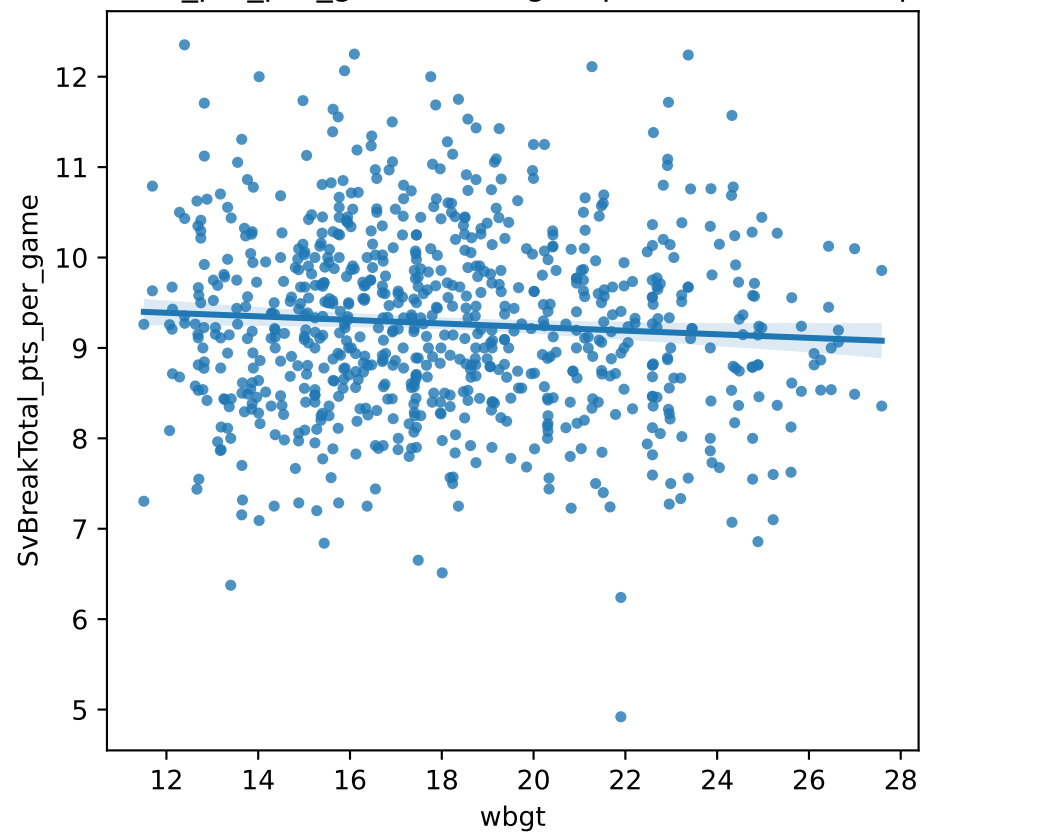
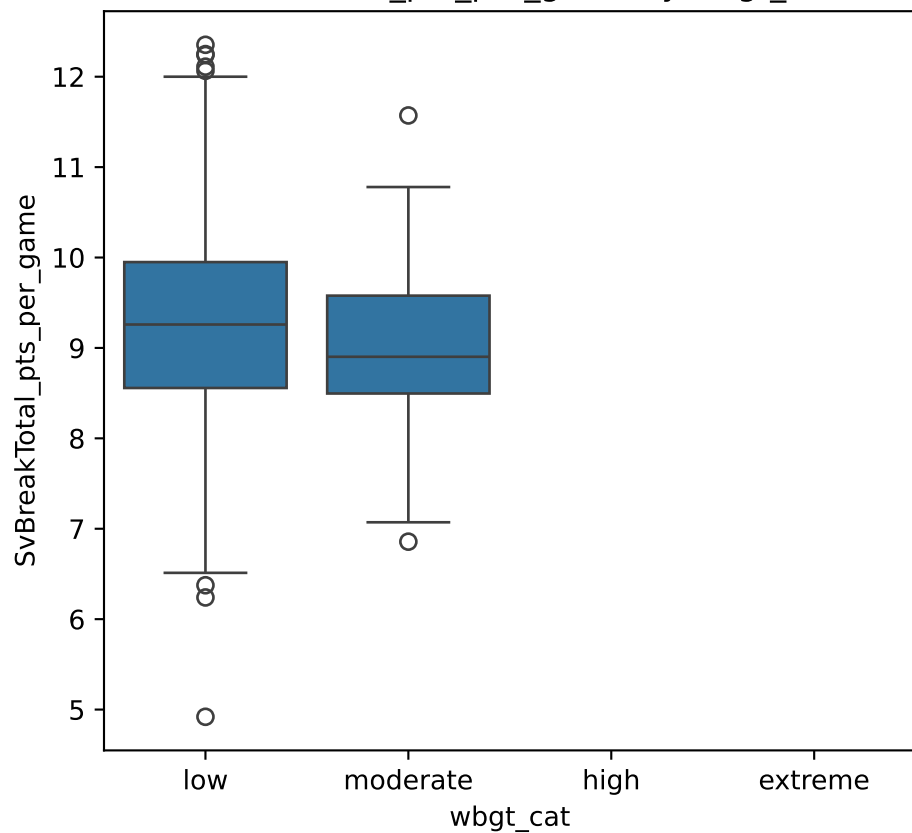
SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game vs temp\_C (Spearman r=0.13, p=0.00025127152558081207)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game by sma\_cat

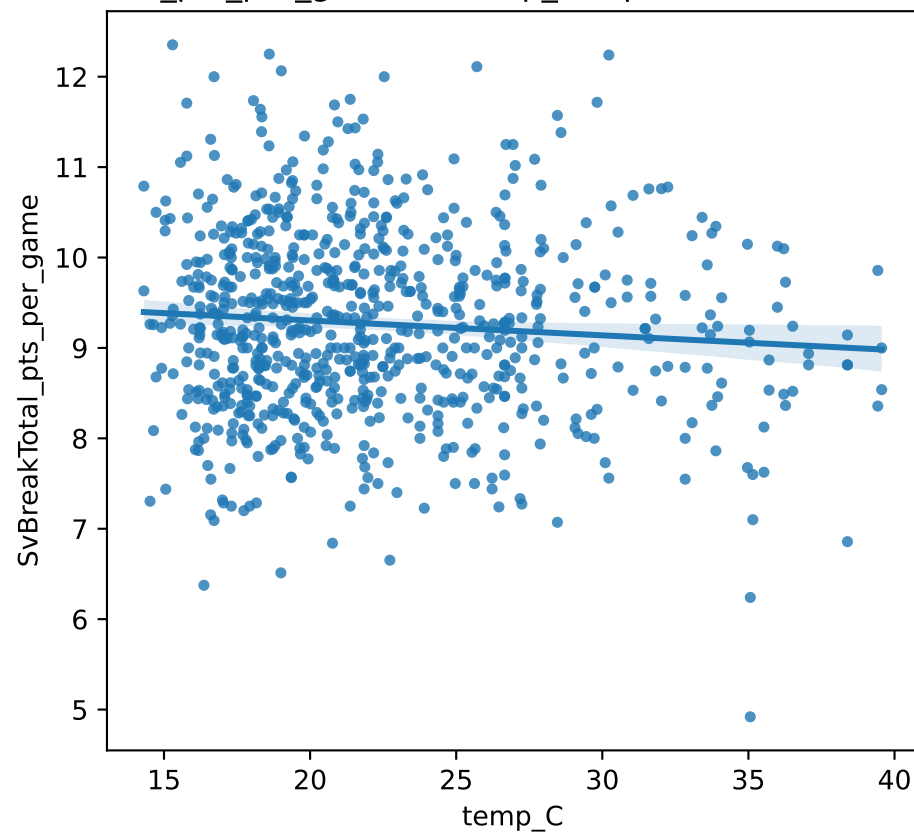
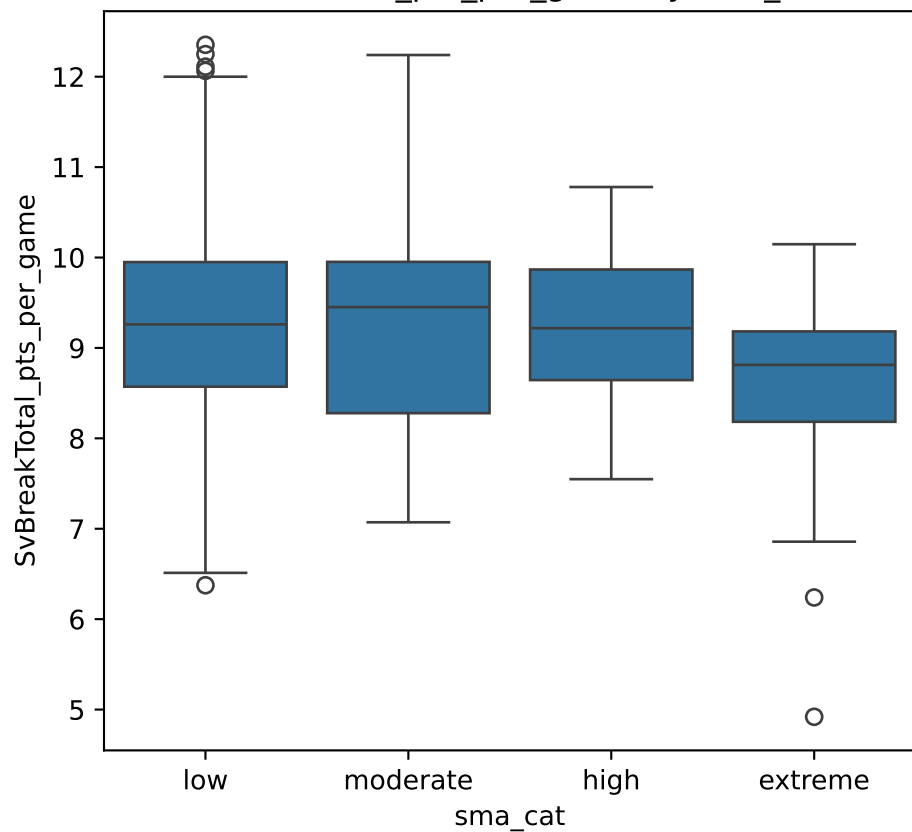
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.389 | 1.0   | 1.0      |
| high     | 0.389   | 1.0   | 0.05  | 1.0      |
| low      | 1.0     | 0.05  | 1.0   | 0.566    |
| moderate | 1.0     | 1.0   | 0.566 | 1.0      |





Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_pts\_per\_game by wbggt\_cat

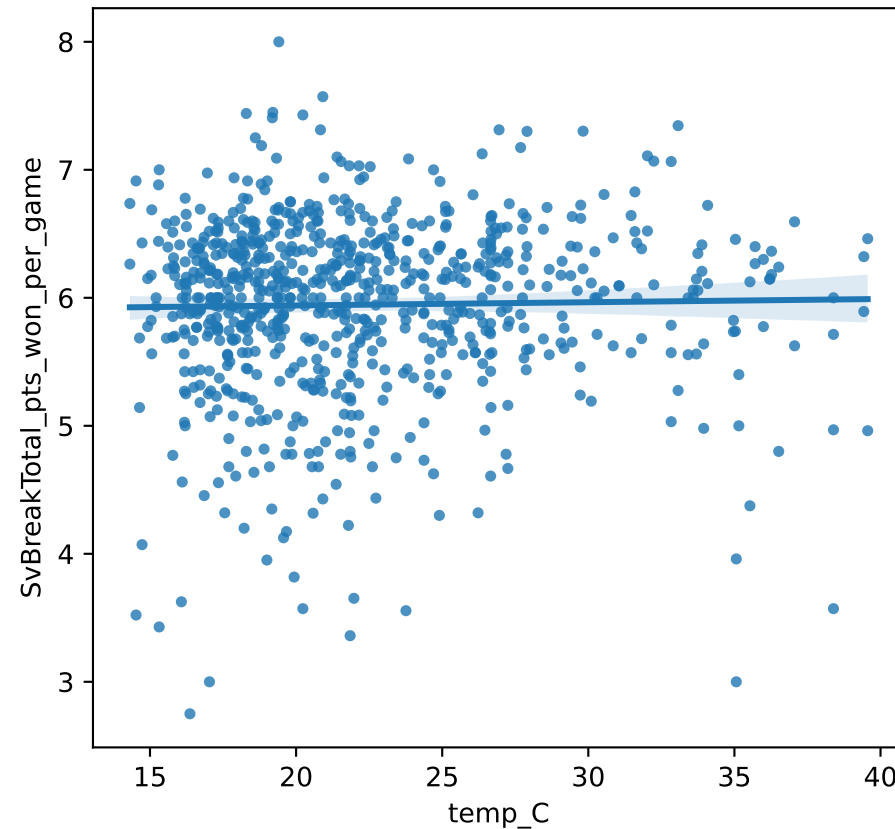
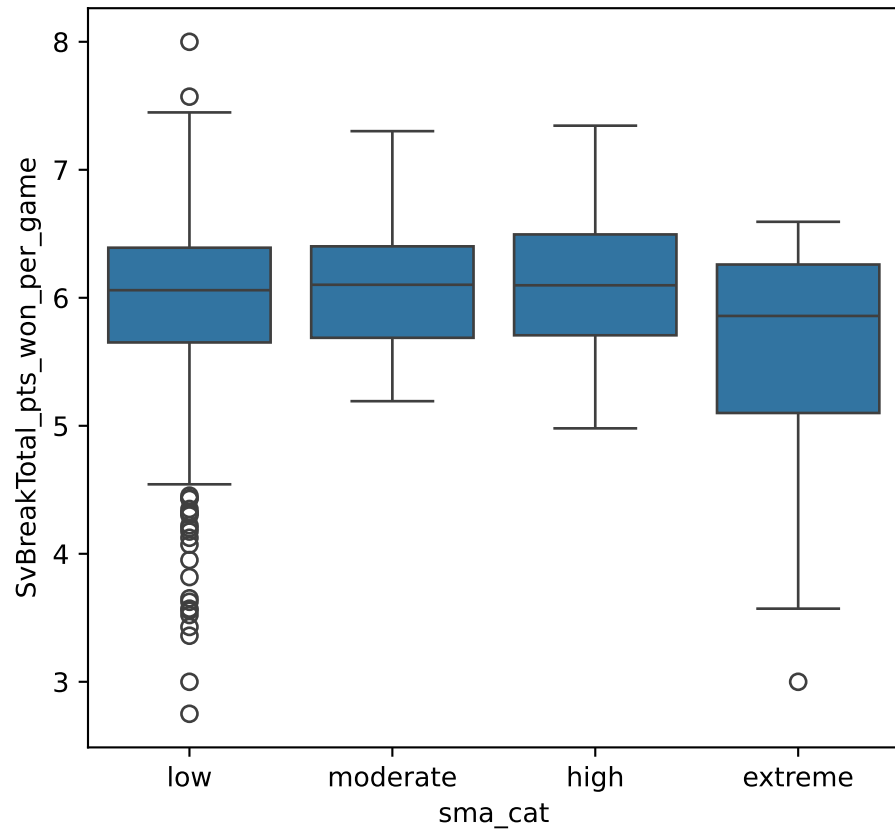
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.056    |
| moderate | 0.056 | 1.0      |



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_pts\_per\_game by sma\_cat

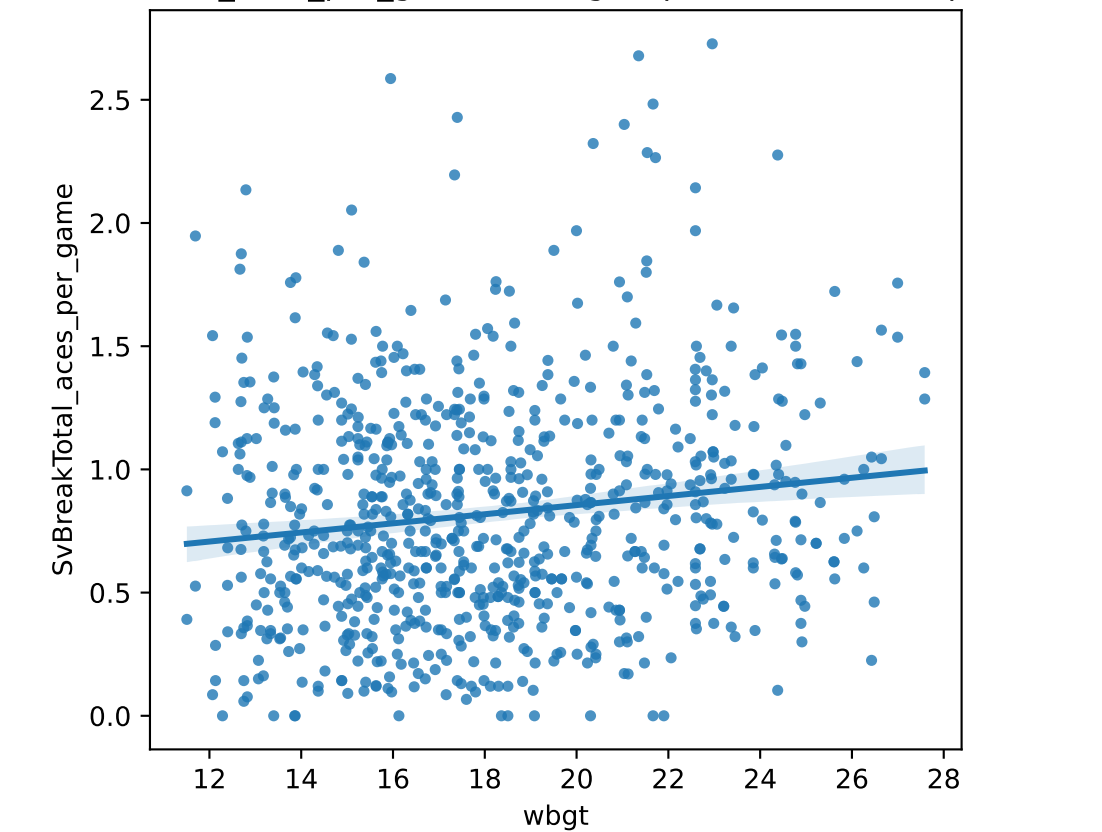
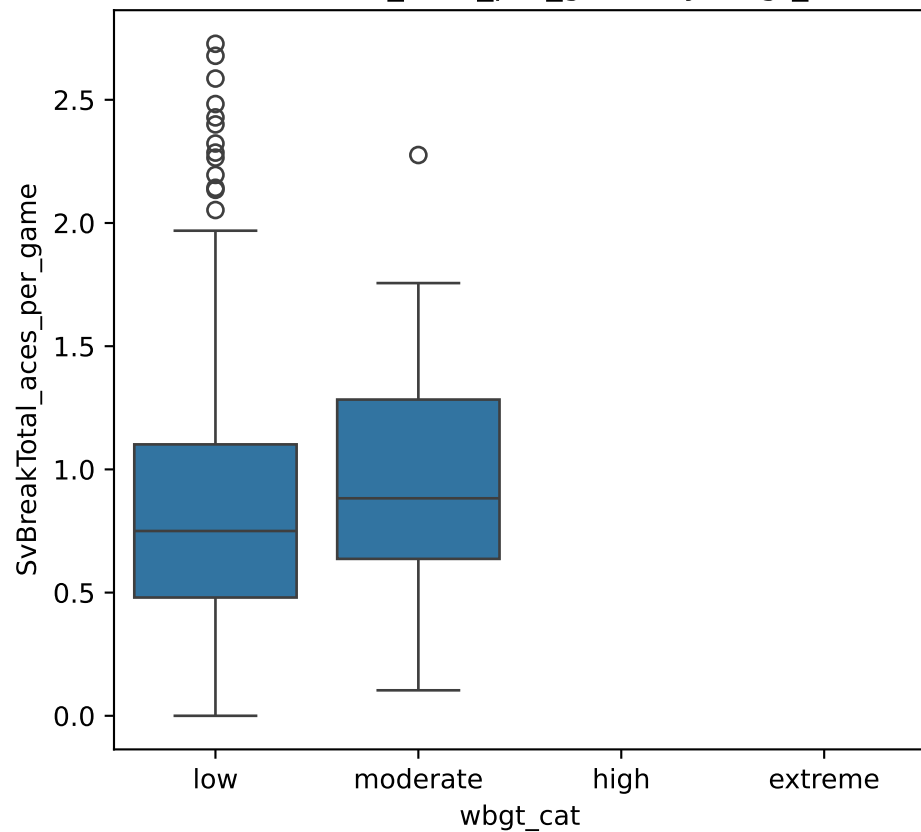
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.129 | 0.009 | 0.147    |
| high     | 0.129   | 1.0   | 1.0   | 1.0      |
| low      | 0.009   | 1.0   | 1.0   | 1.0      |
| moderate | 0.147   | 1.0   | 1.0   | 1.0      |

SvBreakTotal\_pts\_won\_per\_game - sma\_cat  
Kruskal p=0.14, Jonckheere p=NA, Corr p=0.4281624387474551  
SvBreakTotal\_pts\_won\_per\_game by sma\_cat SvBreakTotal\_pts\_won\_per\_game vs temp\_C (Spearman r=0.03, p=0.428)



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_pts\_won\_per\_game by sma\_cat

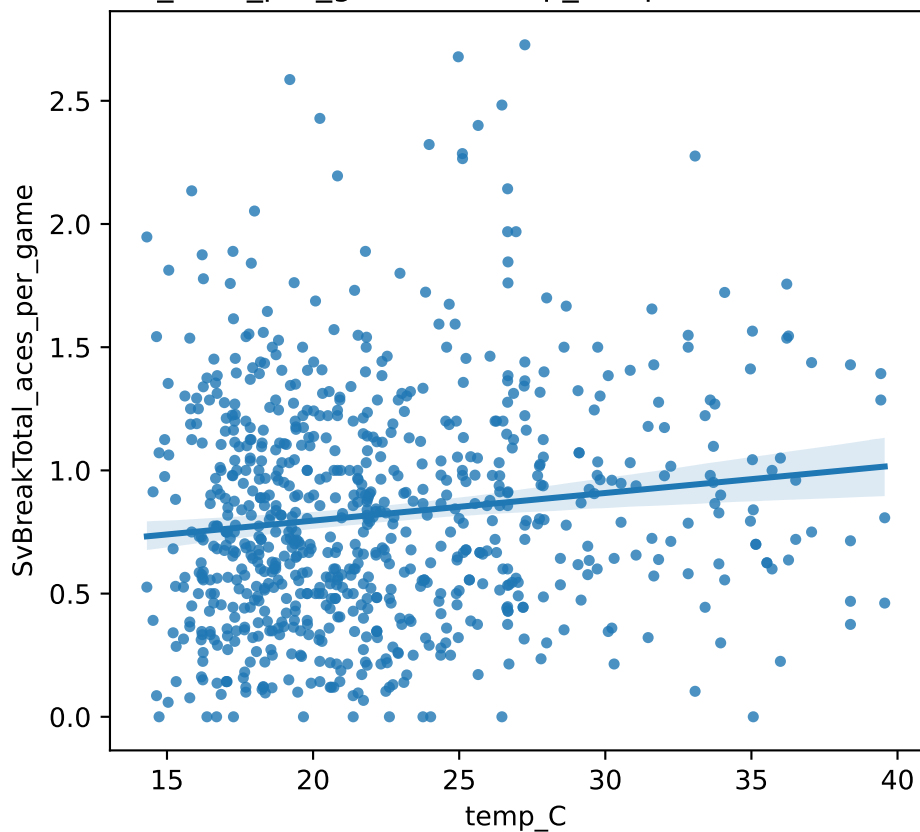
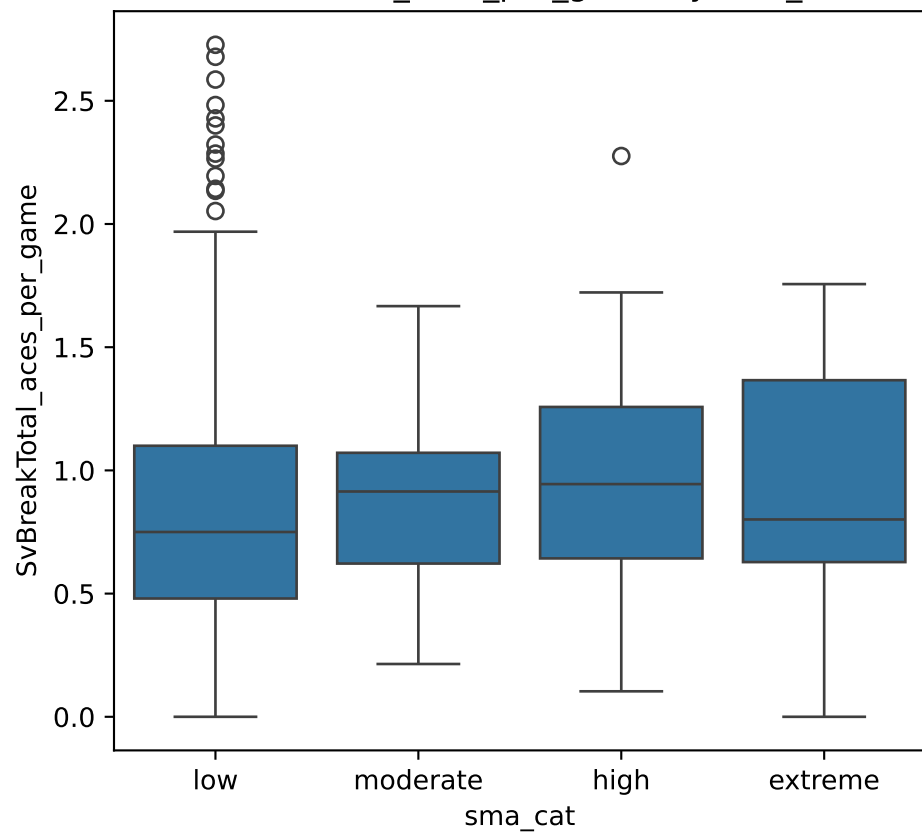
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.188 | 0.516 | 0.357    |
| high     | 0.188   | 1.0   | 1.0   | 1.0      |
| low      | 0.516   | 1.0   | 1.0   | 1.0      |
| moderate | 0.357   | 1.0   | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_aces\_per\_game by wbggt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.015    |
| moderate | 0.015 | 1.0      |

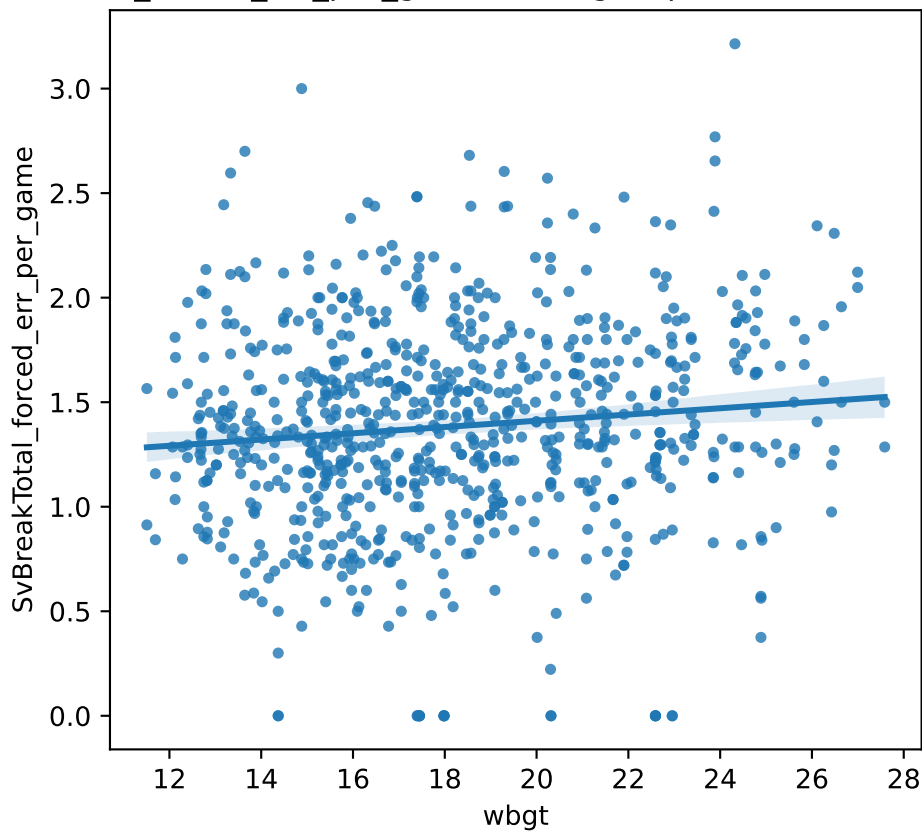
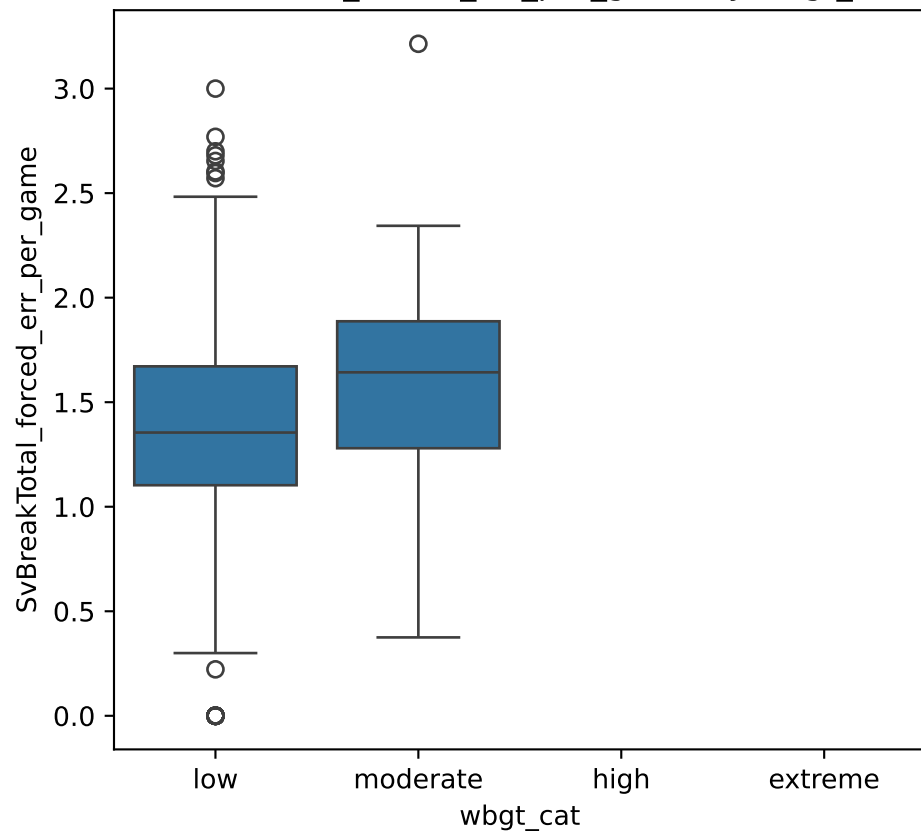




Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.731 | 1.0      |
| high     | 1.0     | 1.0   | 0.158 | 1.0      |
| low      | 0.731   | 0.158 | 1.0   | 0.794    |
| moderate | 1.0     | 1.0   | 0.794 | 1.0      |

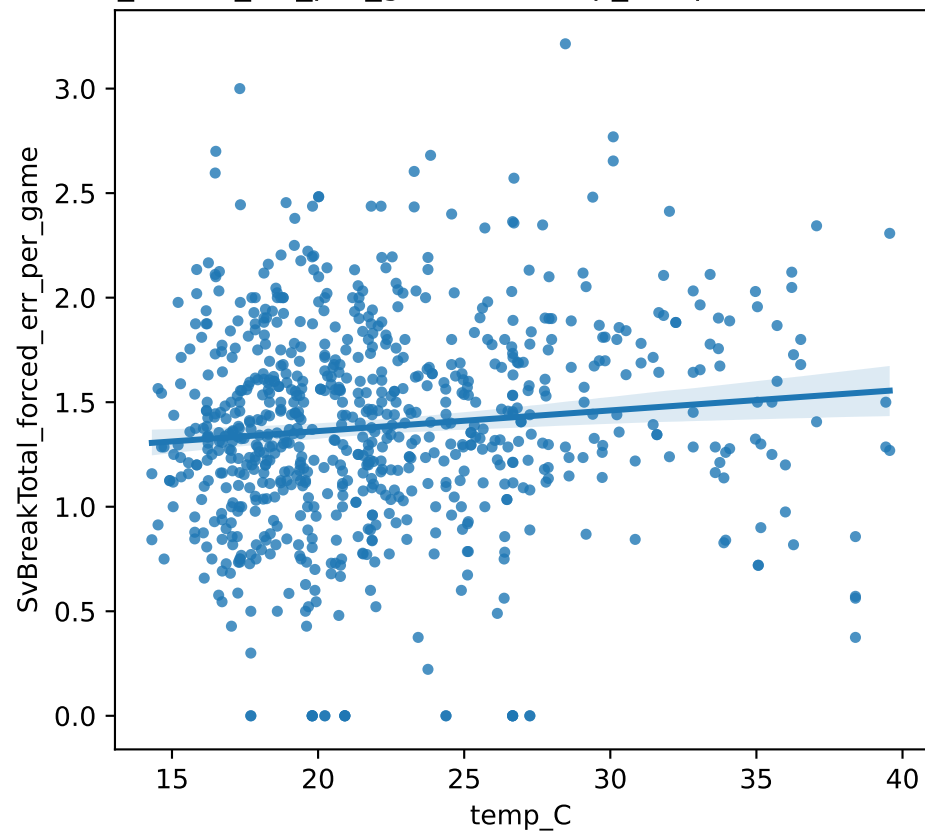
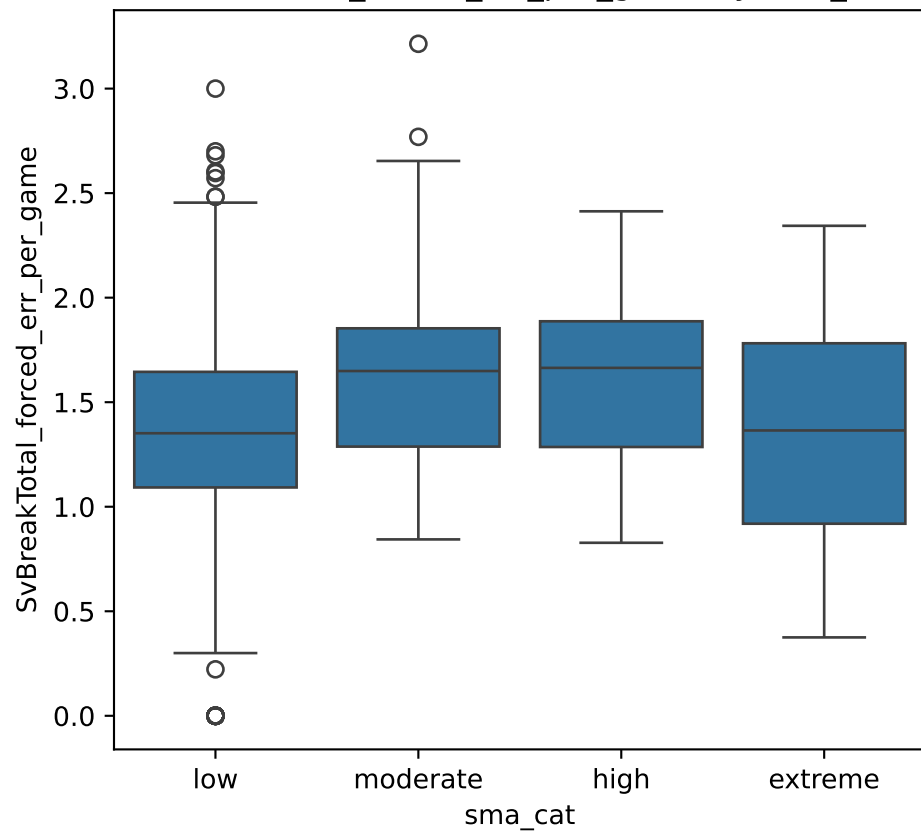
SvBreakTotal\_forced\_err\_per\_game - wbgmt\_cat  
Kruskal p=0.00185, Jonckheere p=NA, Corr p=0.0005635630443554753  
SvBreakTotal\_forced\_err\_per\_game by wbgmt\_cat SvBreakTotal\_forced\_err\_per\_game vs wbgmt (Spearman r=0.12, p=0.001)



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_forced\_err\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.002    |
| moderate | 0.002 | 1.0      |

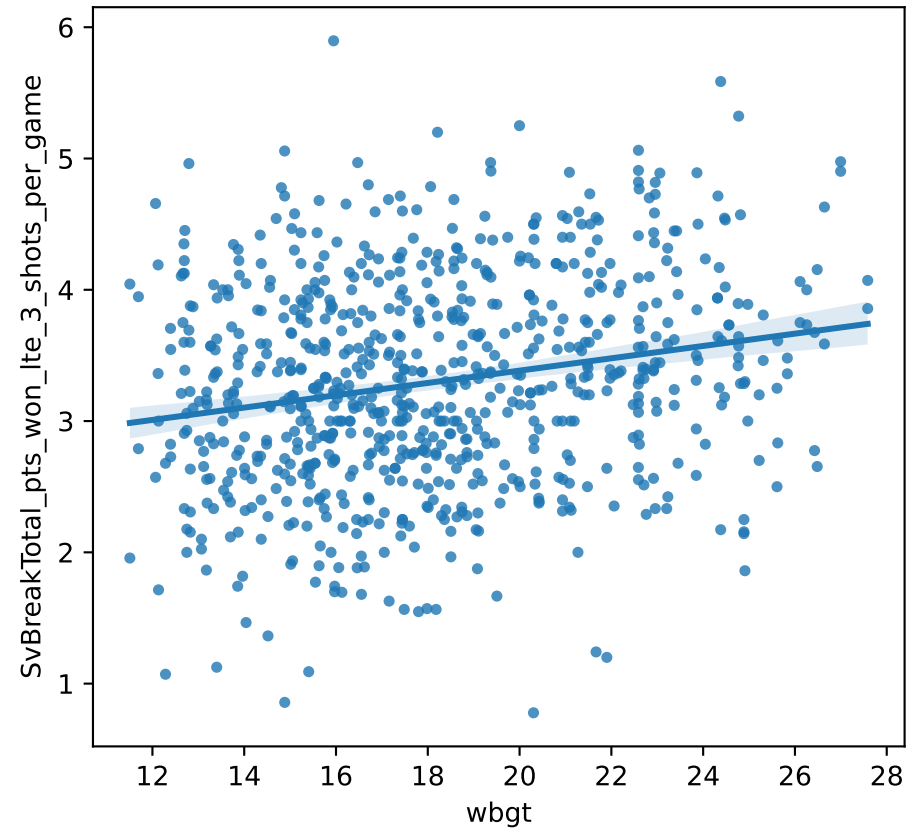
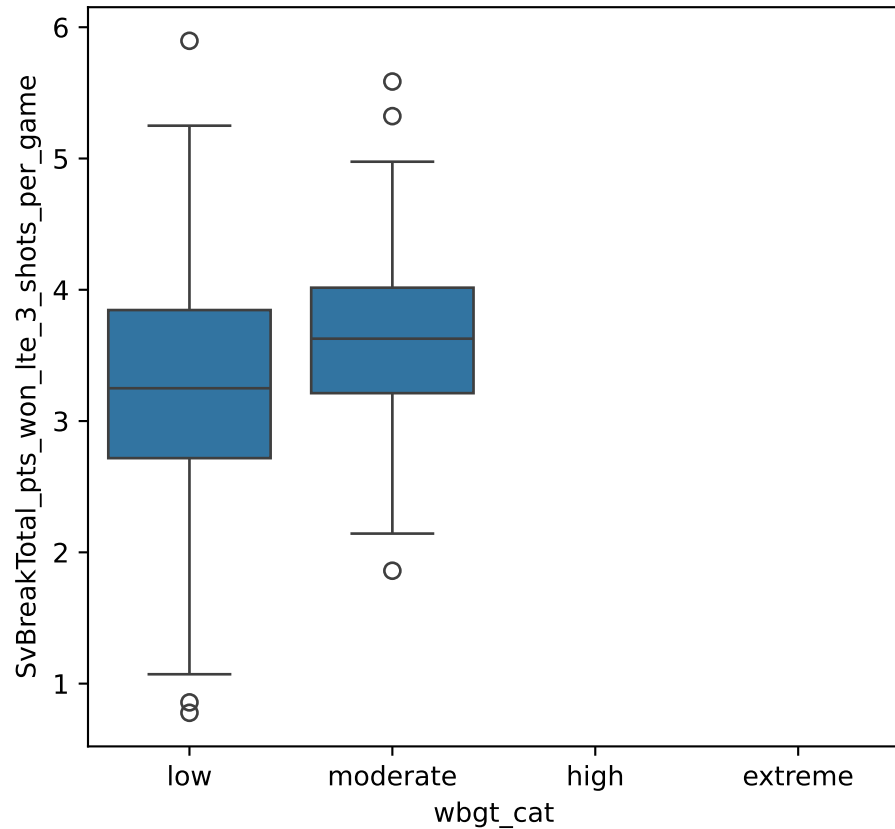
SvBreakTotal\_forced\_err\_per\_game - sma\_cat  
Kruskal p=0.000565, Jonckheere p=NA, Corr p=0.0004902323267153949  
SvBreakTotal\_forced\_err\_per\_game by sma\_cat  
SvBreakTotal\_forced\_err\_per\_game vs temp\_C (Spearman r=0.12, p=0.000)



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_forced\_err\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.321 | 1.0   | 0.323    |
| high     | 0.321   | 1.0   | 0.015 | 1.0      |
| low      | 1.0     | 0.015 | 1.0   | 0.015    |
| moderate | 0.323   | 1.0   | 0.015 | 1.0      |

SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game - wbgt\_cat  
Kruskal p=0.003, Jonckheere p=NA, Corr p=2.8796811659087373e-08  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game by wbgt\_cat  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game vs wbgt (Spearman r=0.20, p=0.00)



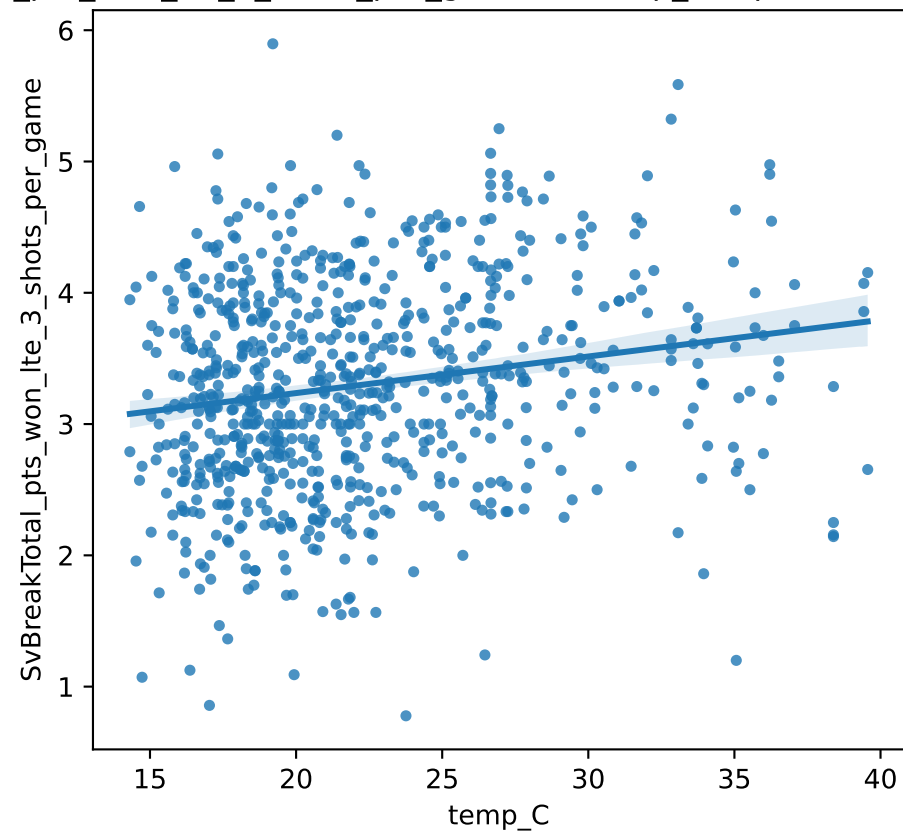
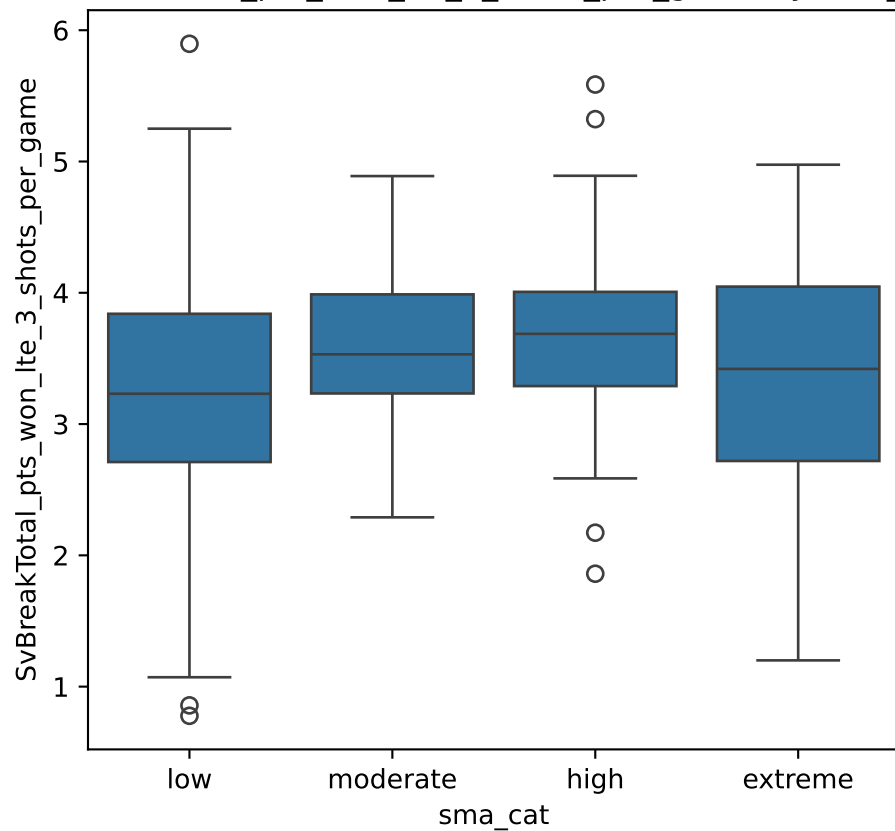
Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.003    |
| moderate | 0.003 | 1.0      |



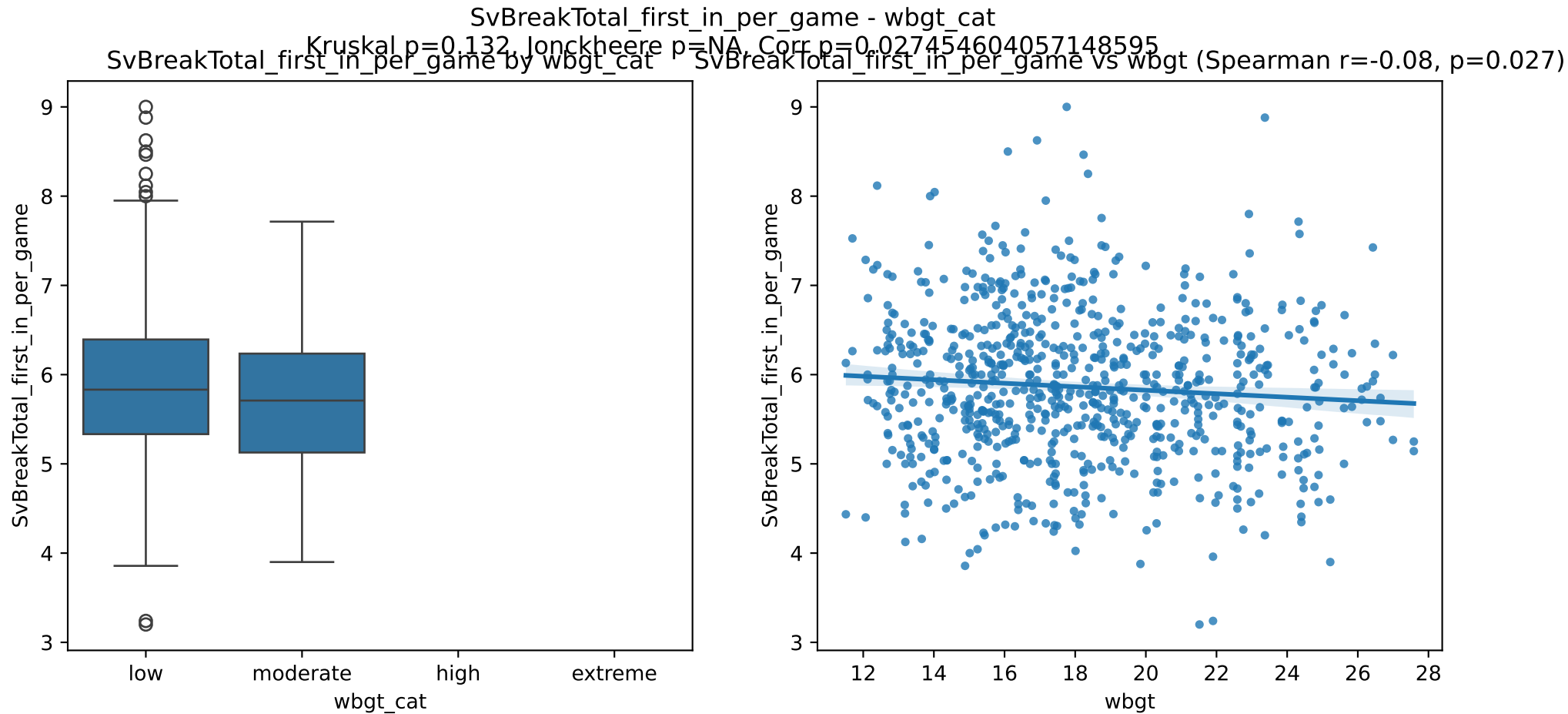
Kruskal p=0.00233, Jonckheere p=NA, Corr p=7.061626452882265e-08

By Breakdown: **total\_pts\_won\_lte\_3\_shots\_per\_game** vs temp\_C (Spearman  $r=0.19$ ,  $p=0.0$ )



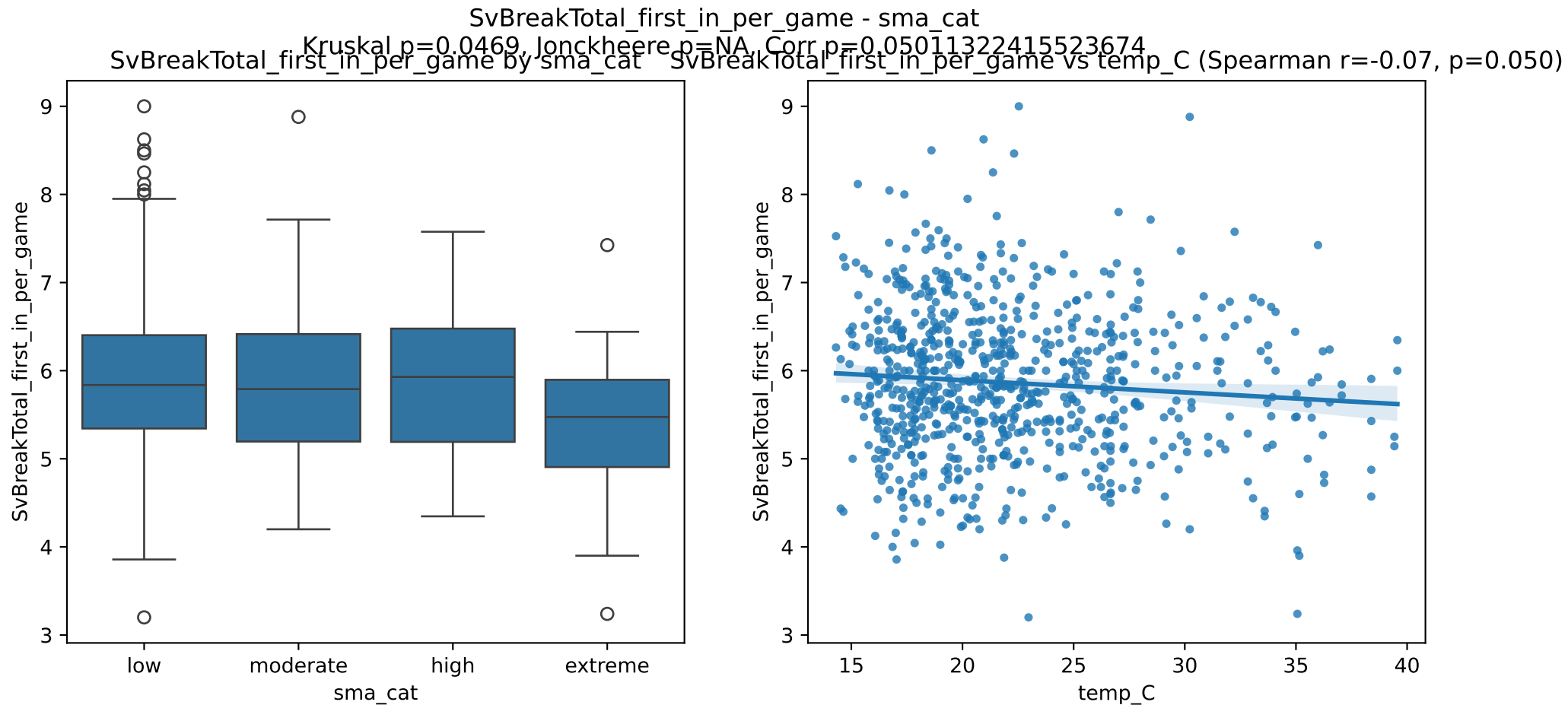
Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.019 | 1.0      |
| low      | 1.0     | 0.019 | 1.0   | 0.093    |
| moderate | 1.0     | 1.0   | 0.093 | 1.0      |



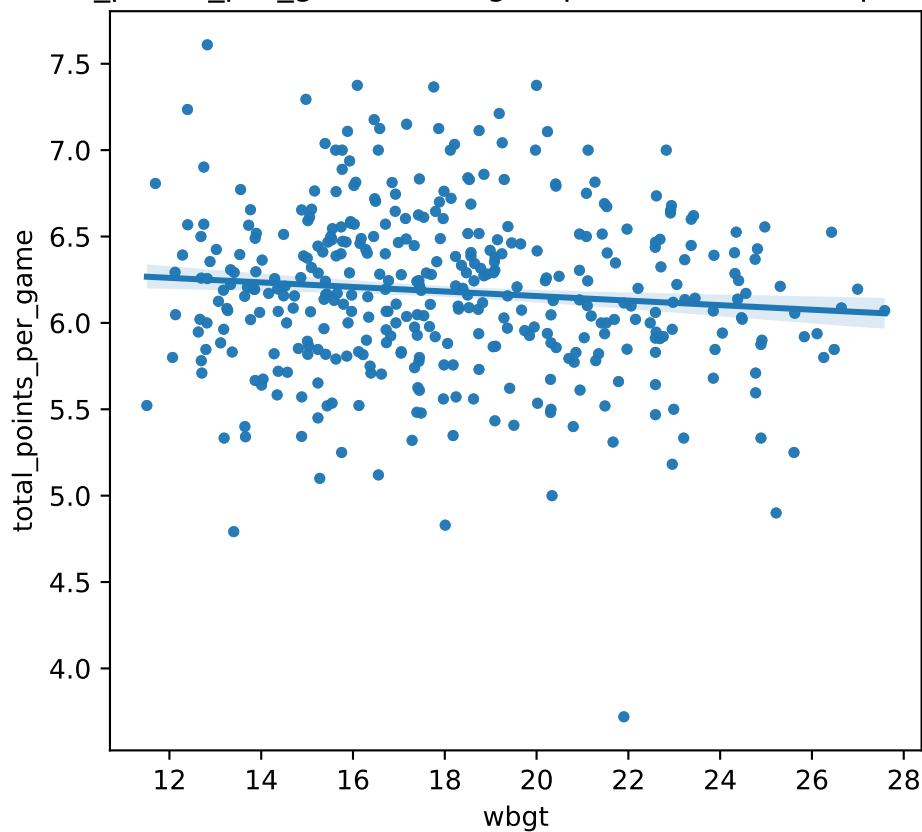
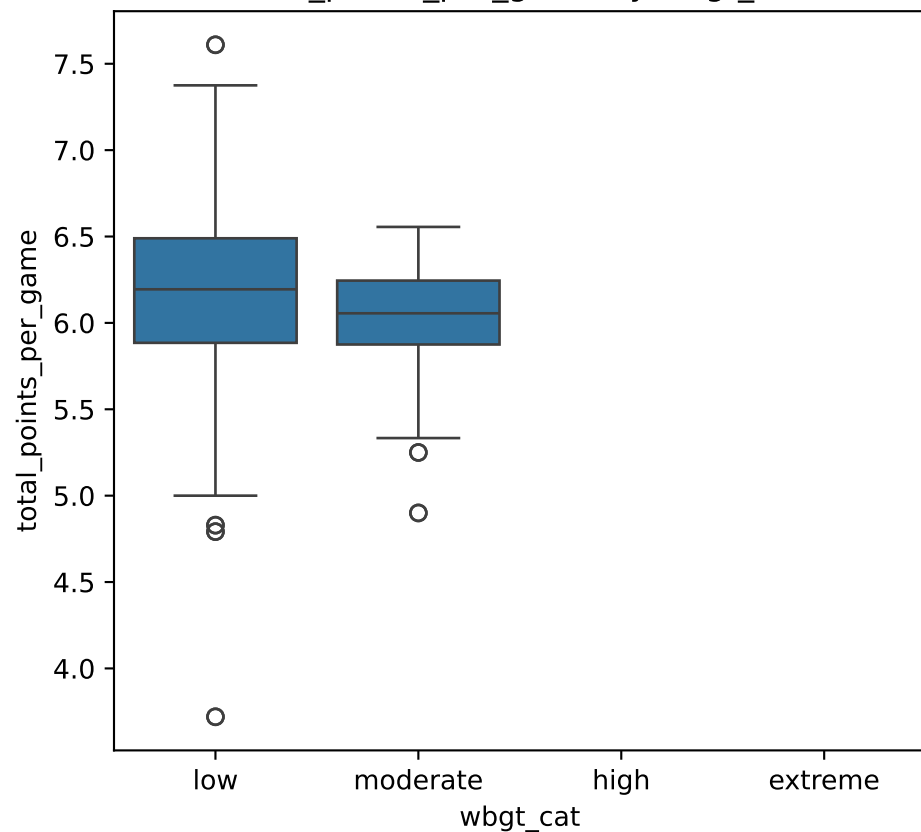
Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_first\_in\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.132    |
| moderate | 0.132 | 1.0      |



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_first\_in\_per\_game by sma\_cat

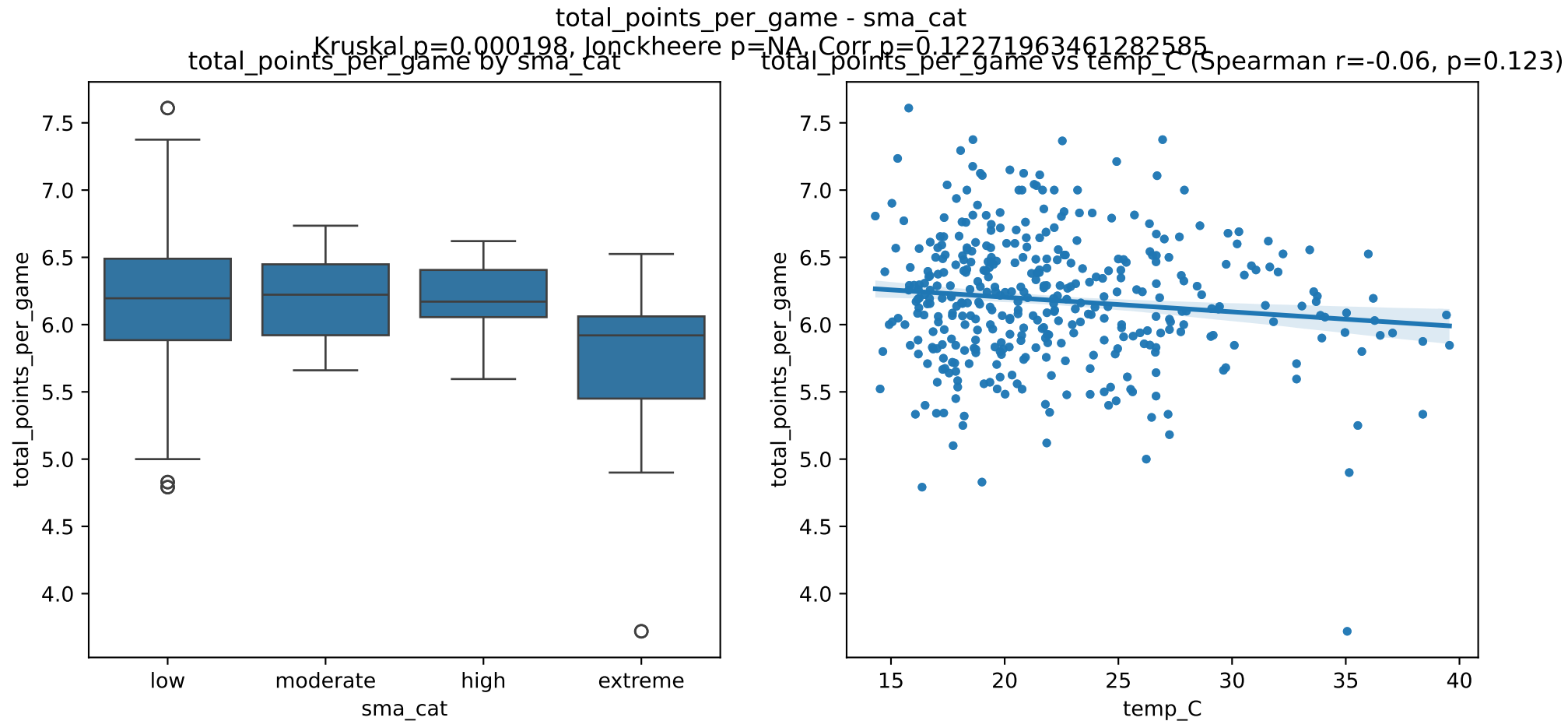
|          | extreme | high | low  | moderate |
|----------|---------|------|------|----------|
| extreme  | 1.0     | 0.28 | 0.03 | 0.458    |
| high     | 0.28    | 1.0  | 1.0  | 1.0      |
| low      | 0.03    | 1.0  | 1.0  | 1.0      |
| moderate | 0.458   | 1.0  | 1.0  | 1.0      |



Dunn Post-hoc (p-değerleri)  
total\_points\_per\_game by wbgt\_cat

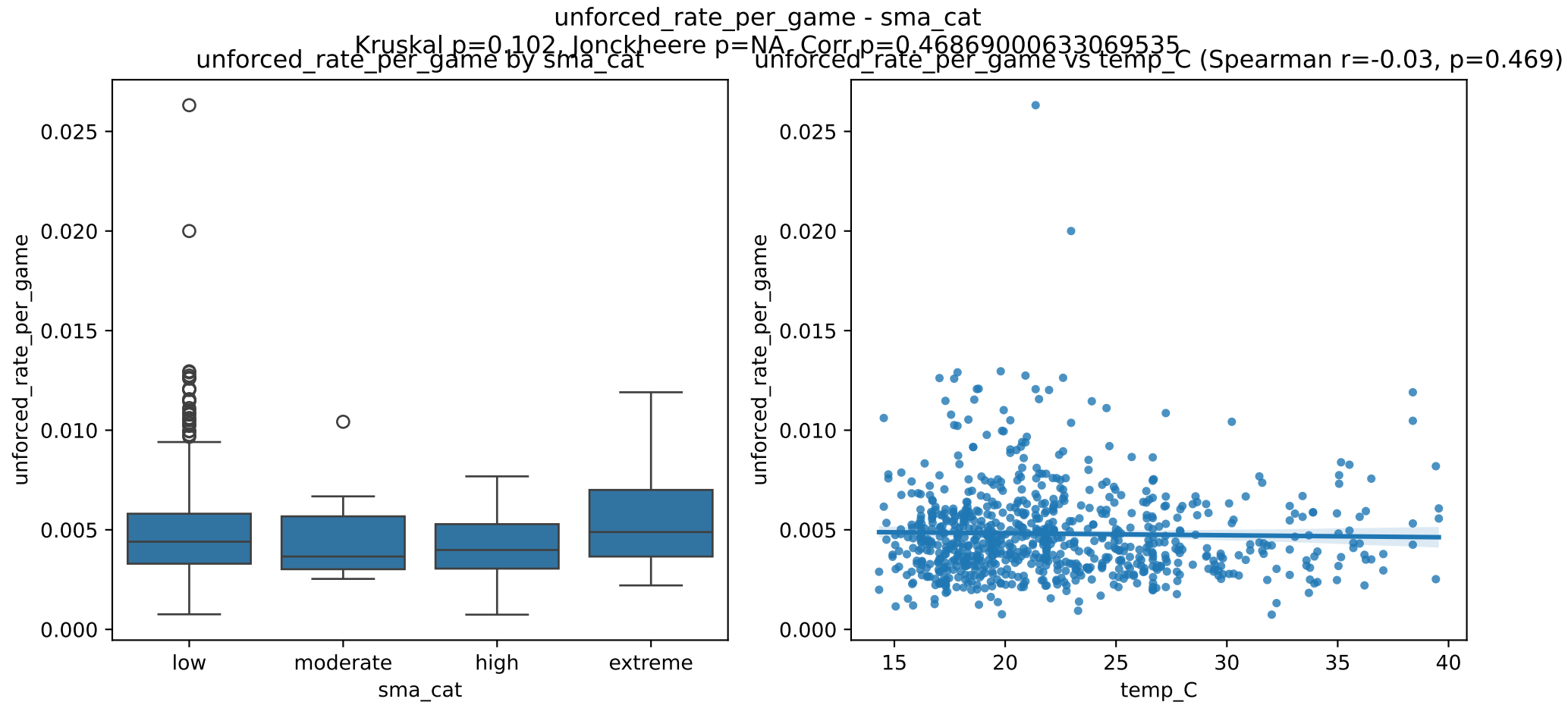
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.007    |
| moderate | 0.007 | 1.0      |





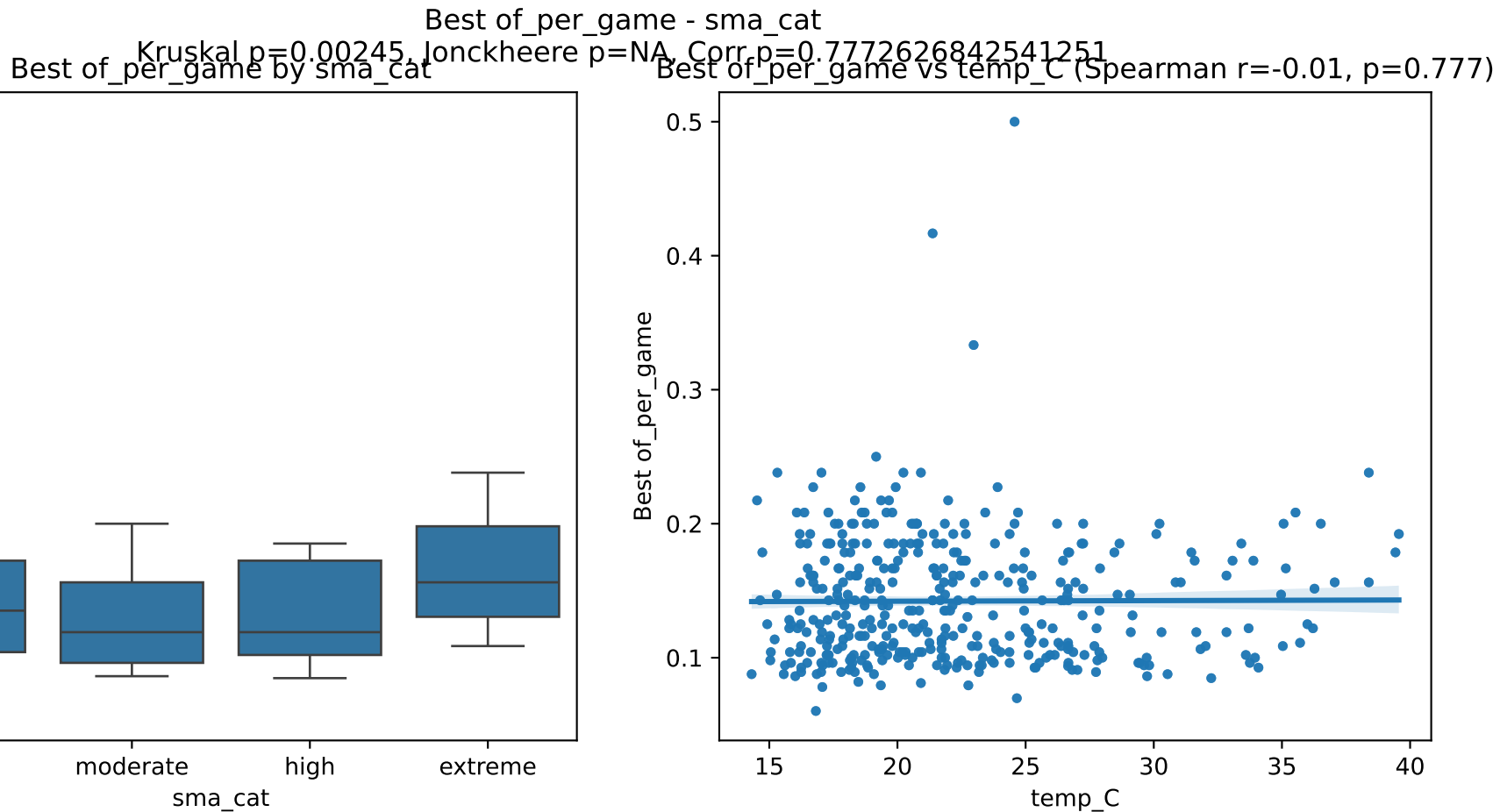
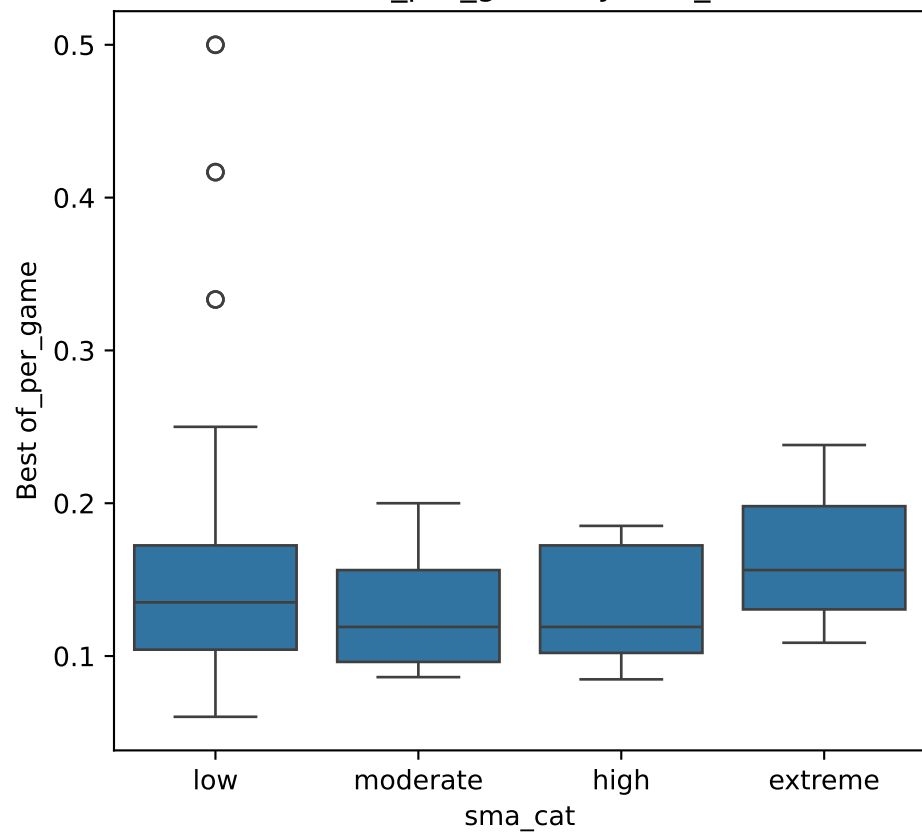
Dunn Post-hoc (p-değerleri)  
total\_points\_per\_game by sma\_cat

|          | extreme | high  | low | moderate |
|----------|---------|-------|-----|----------|
| extreme  | 1.0     | 0.006 | 0.0 | 0.002    |
| high     | 0.006   | 1.0   | 1.0 | 1.0      |
| low      | 0.0     | 1.0   | 1.0 | 1.0      |
| moderate | 0.002   | 1.0   | 1.0 | 1.0      |



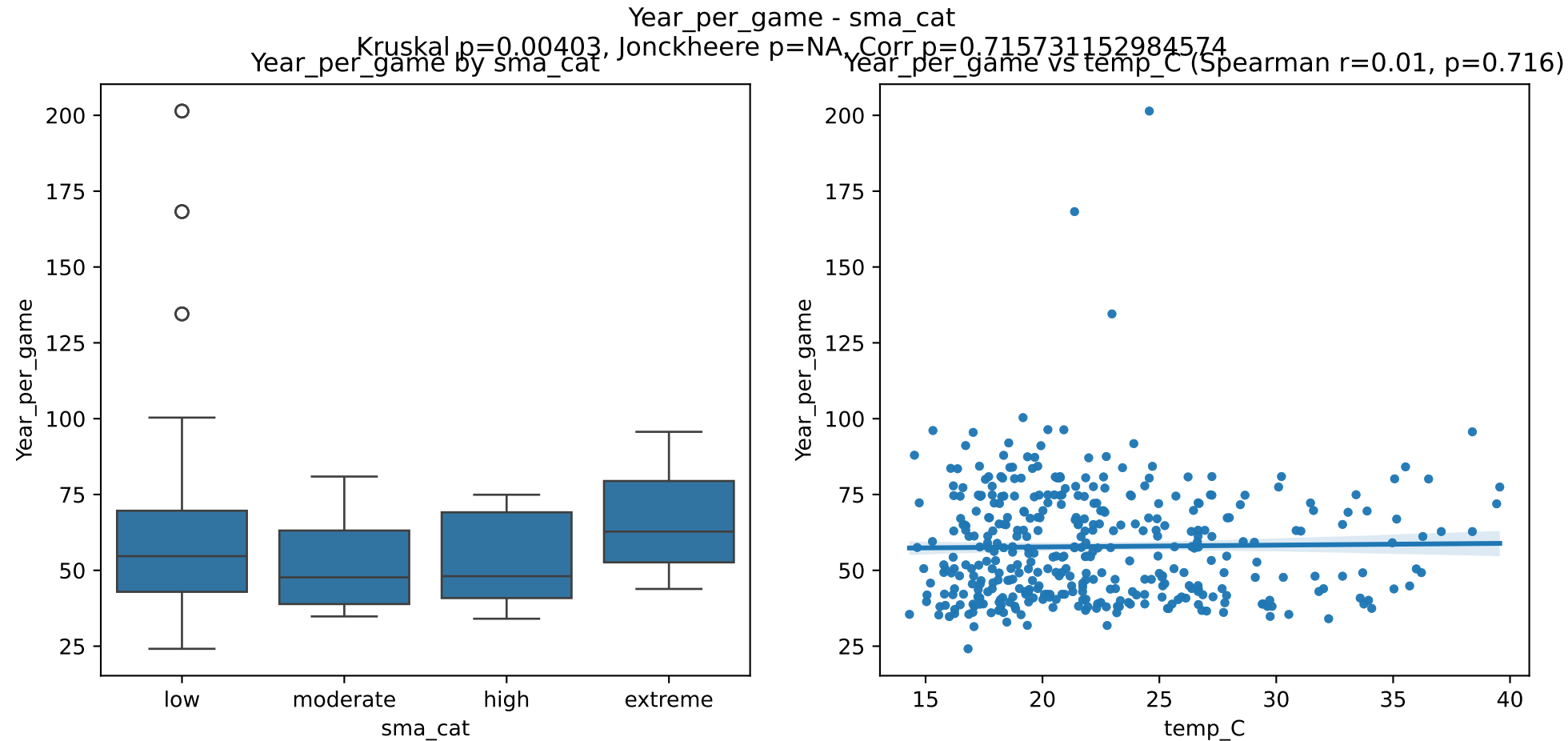
Dunn Post-hoc (p-değerleri)  
unforced\_rate\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.218 | 0.989 | 0.285    |
| high     | 0.218   | 1.0   | 0.788 | 1.0      |
| low      | 0.989   | 0.788 | 1.0   | 1.0      |
| moderate | 0.285   | 1.0   | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
Best of\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.011 | 0.008 | 0.003    |
| high     | 0.011   | 1.0   | 1.0   | 1.0      |
| low      | 0.008   | 1.0   | 1.0   | 0.726    |
| moderate | 0.003   | 1.0   | 0.726 | 1.0      |

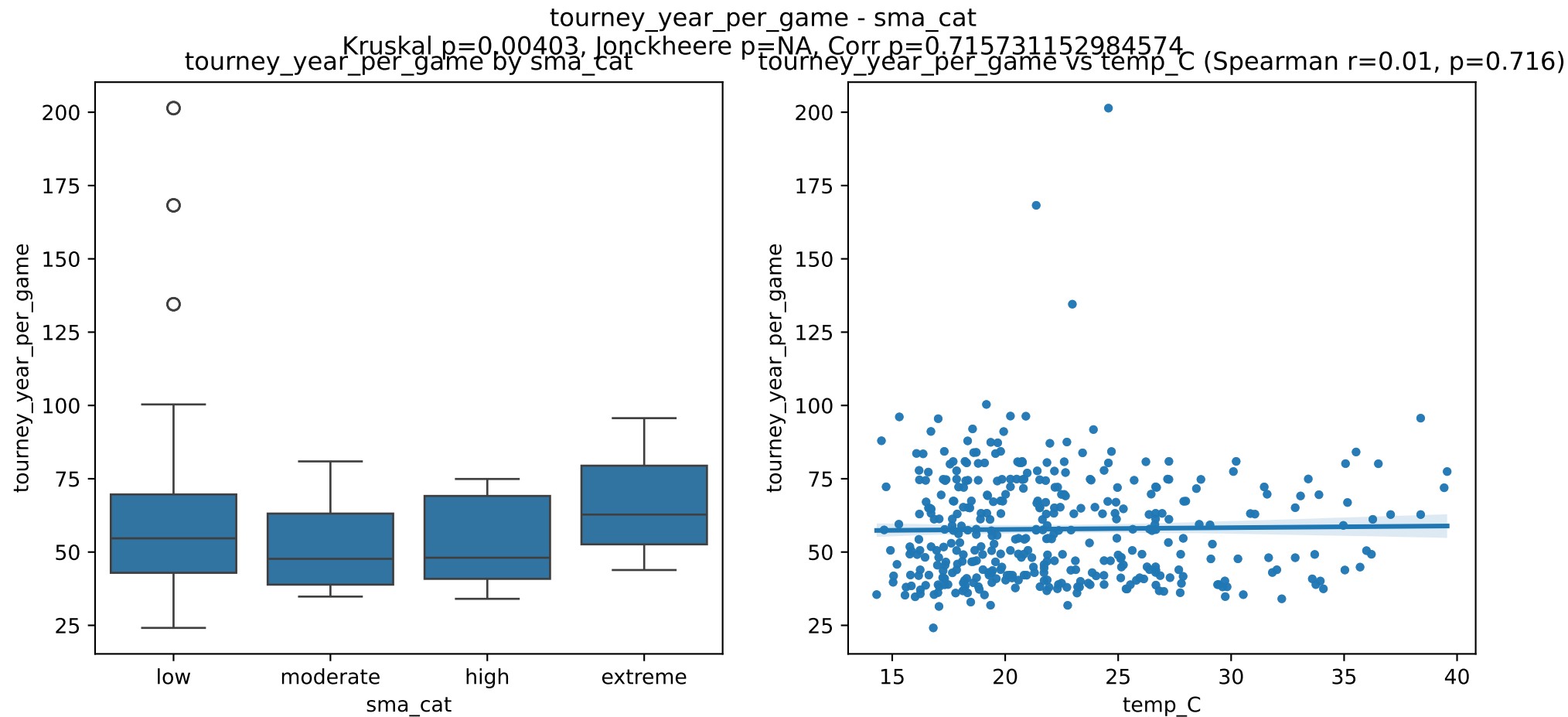


# Dunn Post-hoc (p-değerleri)

## Year\_per\_game by sma\_cat

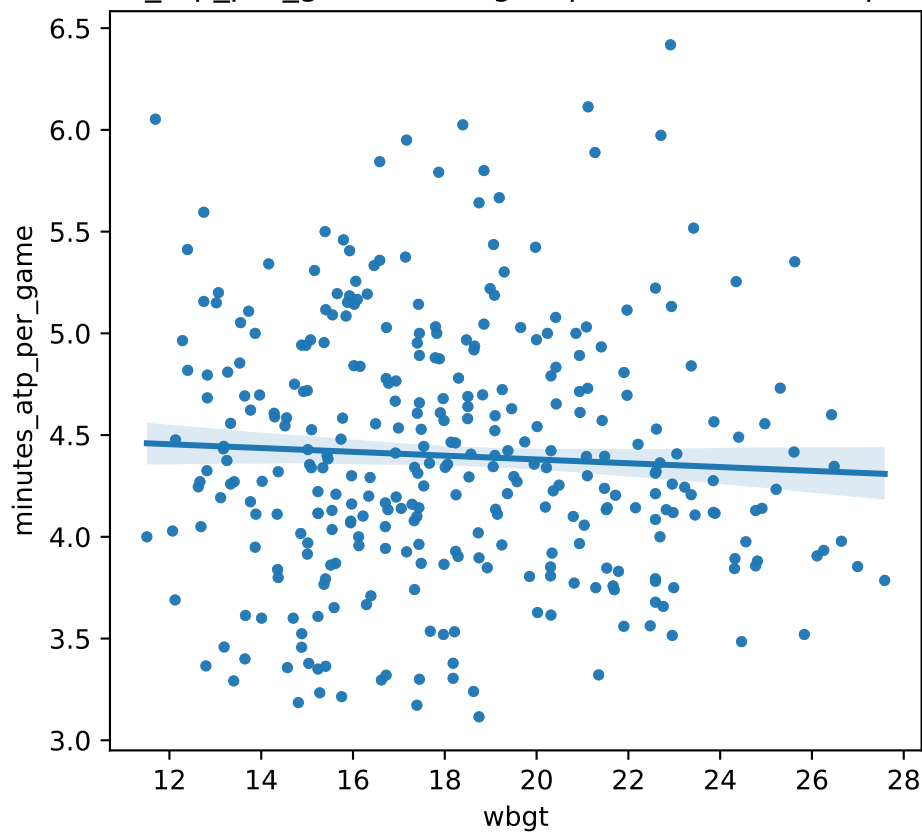
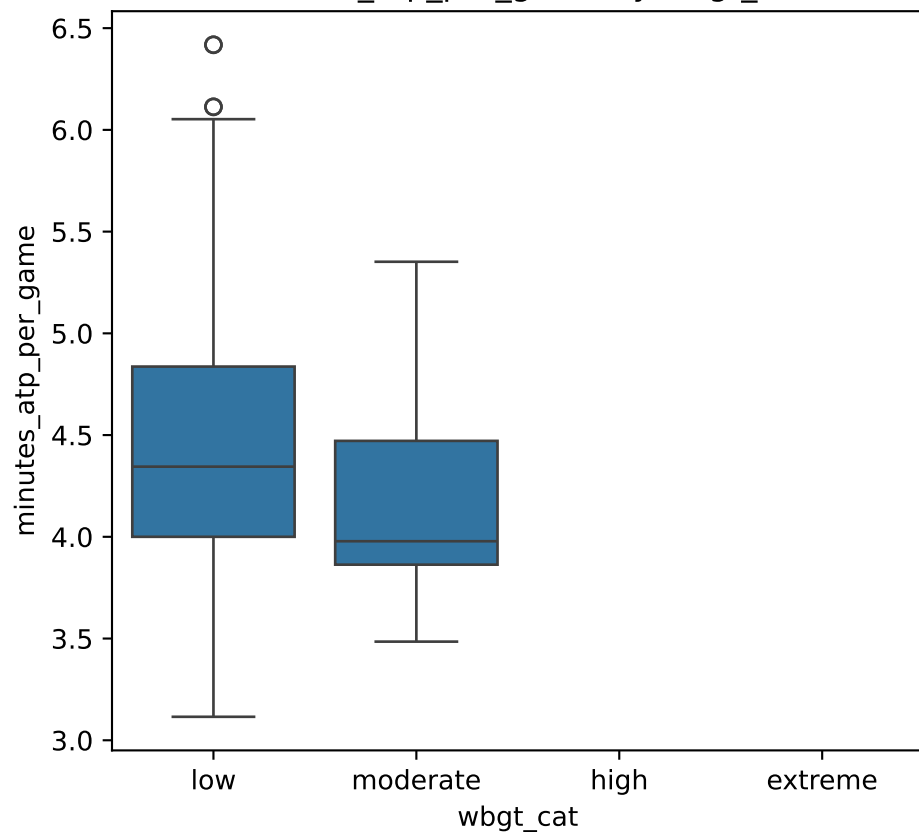
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.016 | 0.027 | 0.005    |
| high     | 0.016   | 1.0   | 1.0   | 1.0      |
| low      | 0.027   | 1.0   | 1.0   | 0.487    |
| moderate | 0.005   | 1.0   | 0.487 | 1.0      |





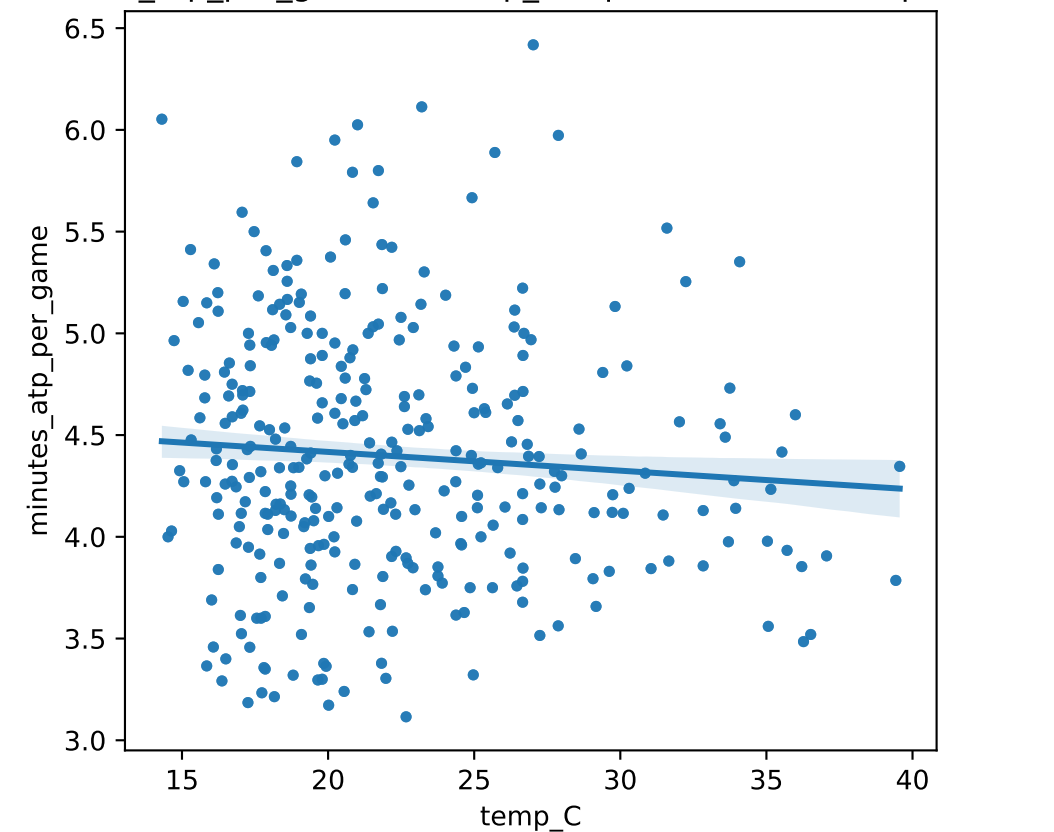
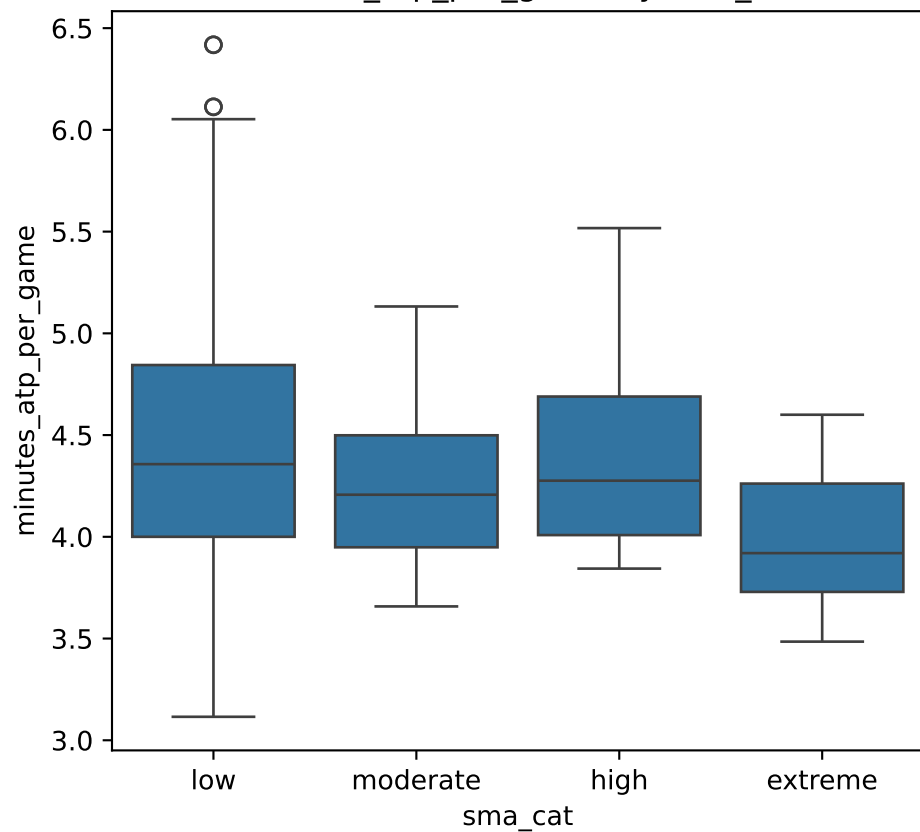
Dunn Post-hoc (p-değerleri)  
tourney\_year\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.016 | 0.027 | 0.005    |
| high     | 0.016   | 1.0   | 1.0   | 1.0      |
| low      | 0.027   | 1.0   | 1.0   | 0.487    |
| moderate | 0.005   | 1.0   | 0.487 | 1.0      |



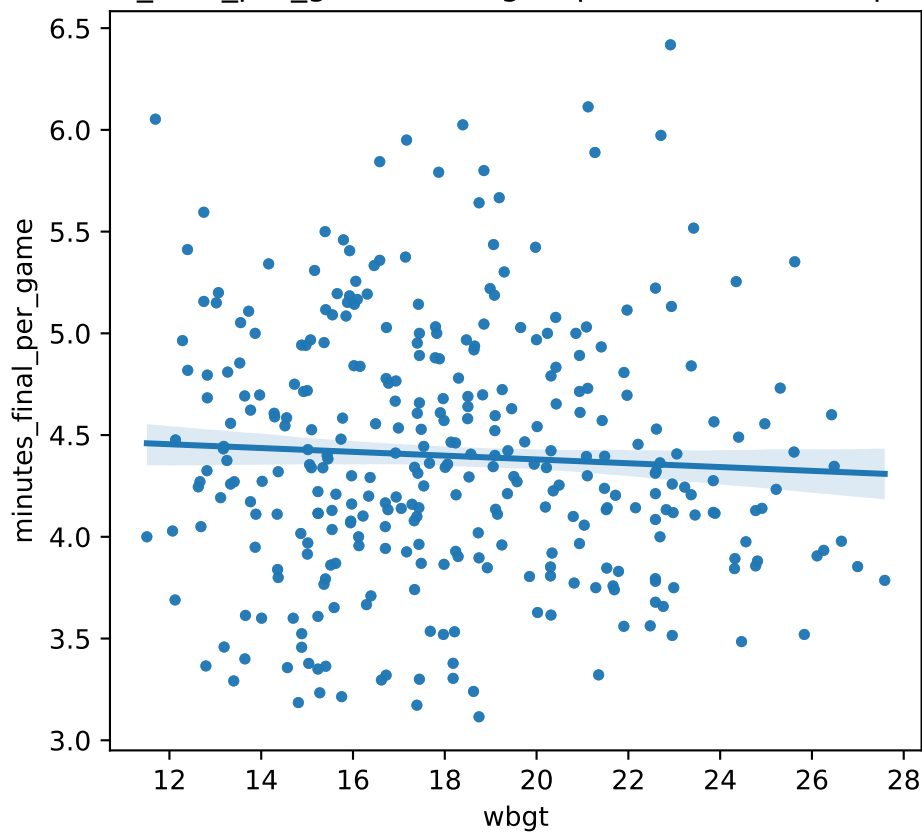
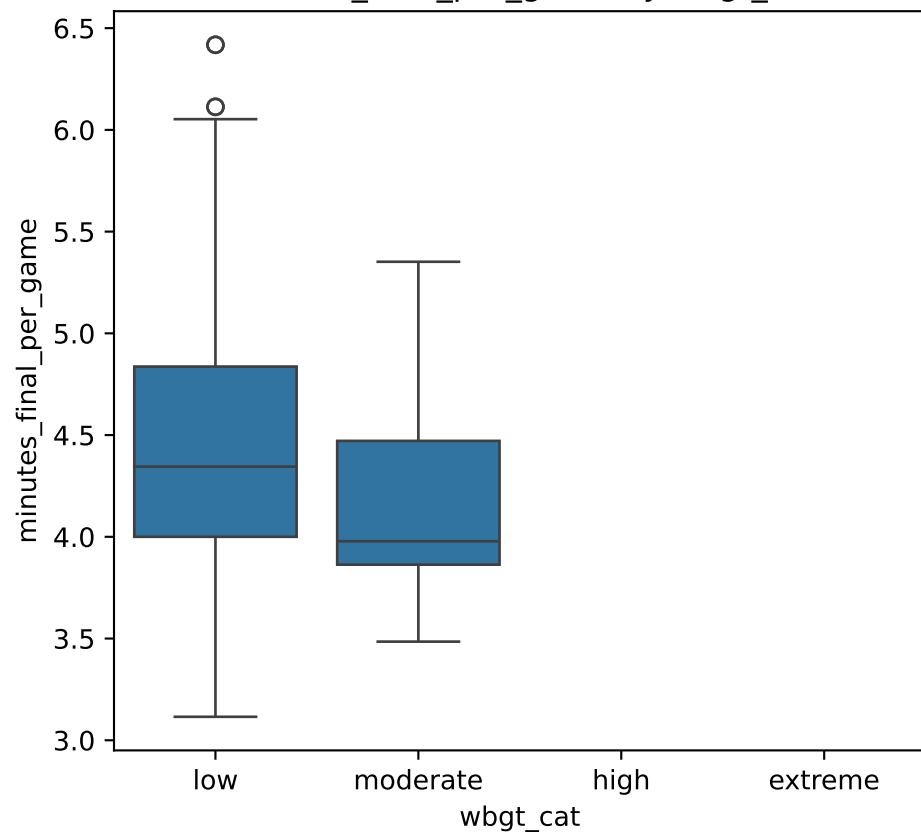
Dunn Post-hoc (p-değerleri)  
minutes\_atp\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.006    |
| moderate | 0.006 | 1.0      |



Dunn Post-hoc (p-değerleri)  
minutes\_atp\_per\_game by sma\_cat

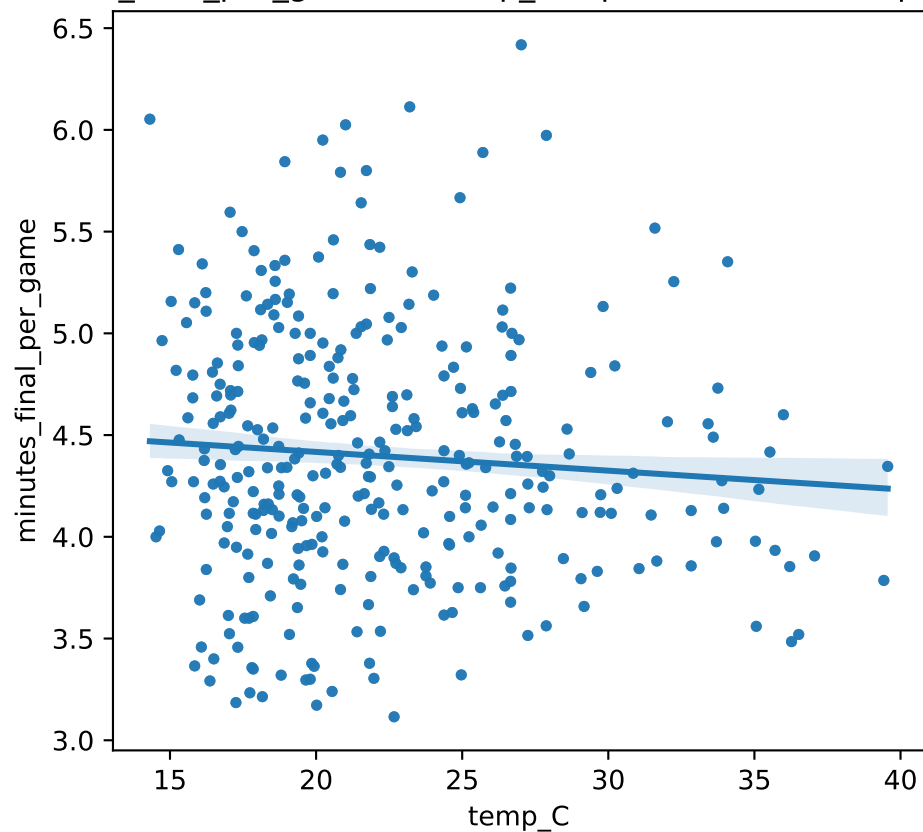
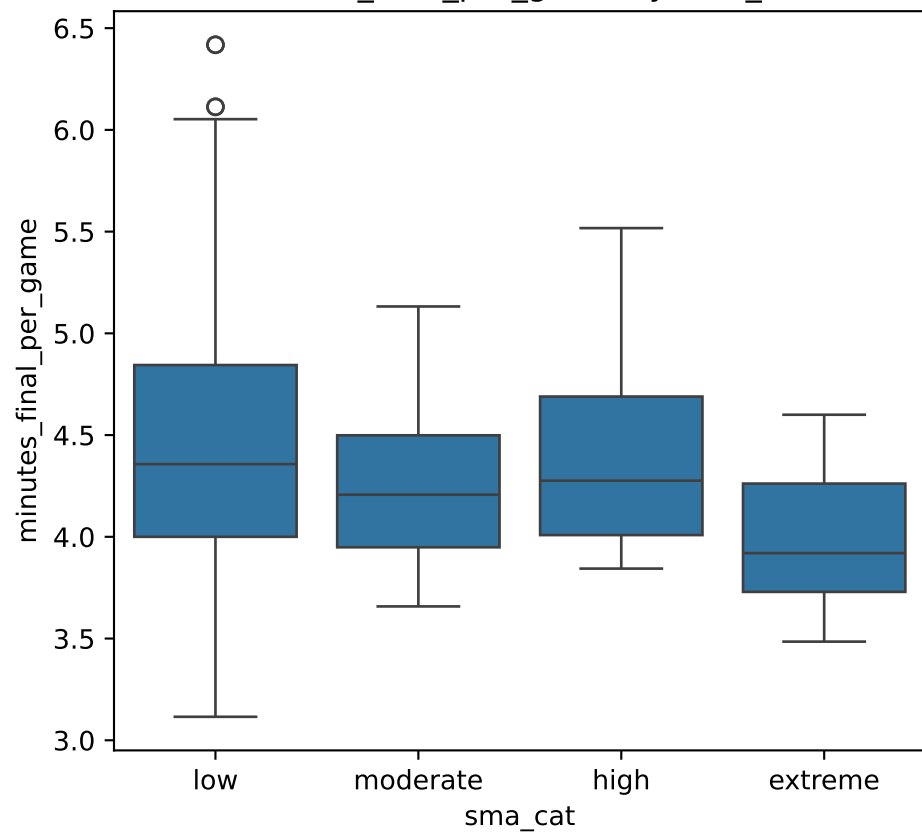
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.024 | 0.001 | 0.357    |
| high     | 0.024   | 1.0   | 1.0   | 1.0      |
| low      | 0.001   | 1.0   | 1.0   | 0.961    |
| moderate | 0.357   | 1.0   | 0.961 | 1.0      |



Dunn Post-hoc (p-değerleri)  
minutes\_final\_per\_game by wbgt\_cat

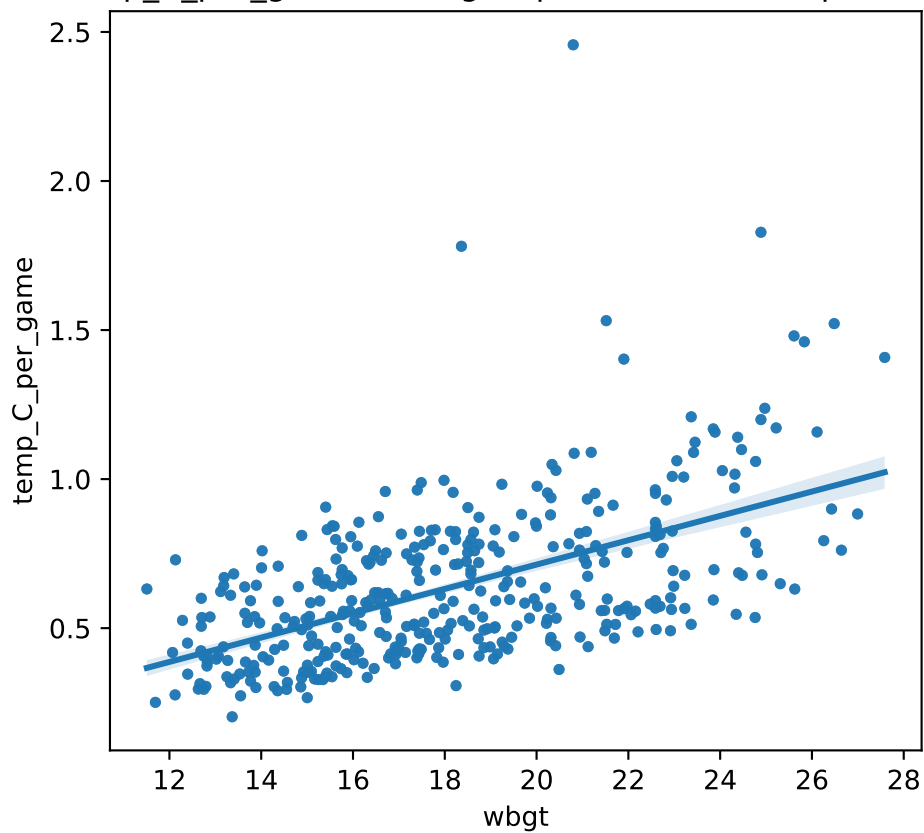
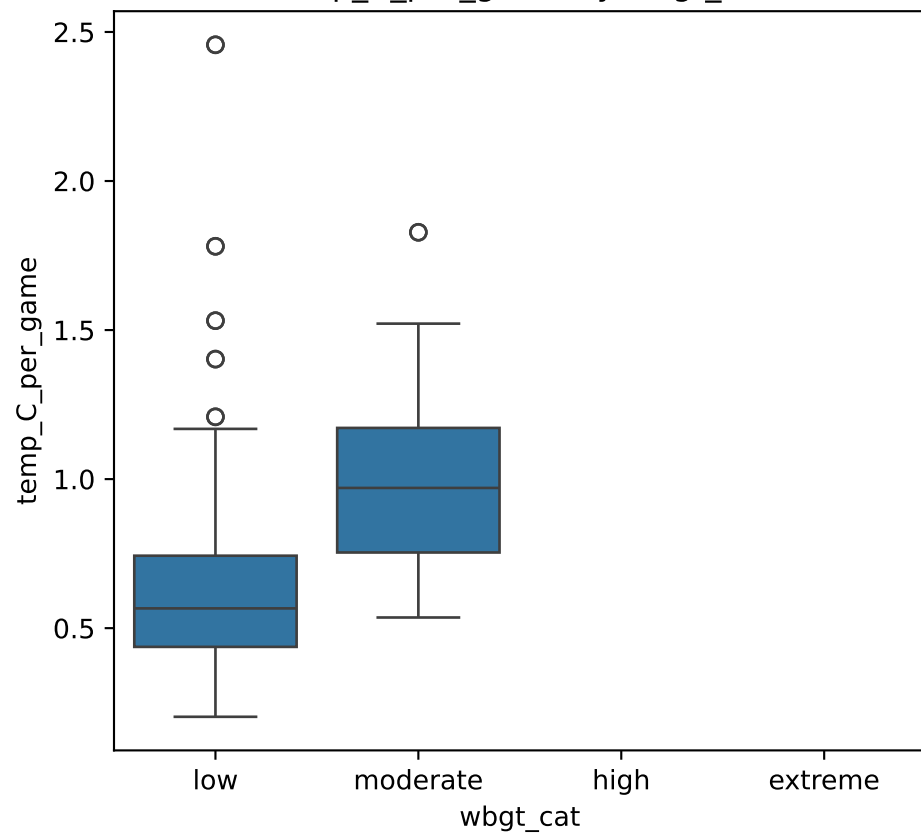
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.006    |
| moderate | 0.006 | 1.0      |





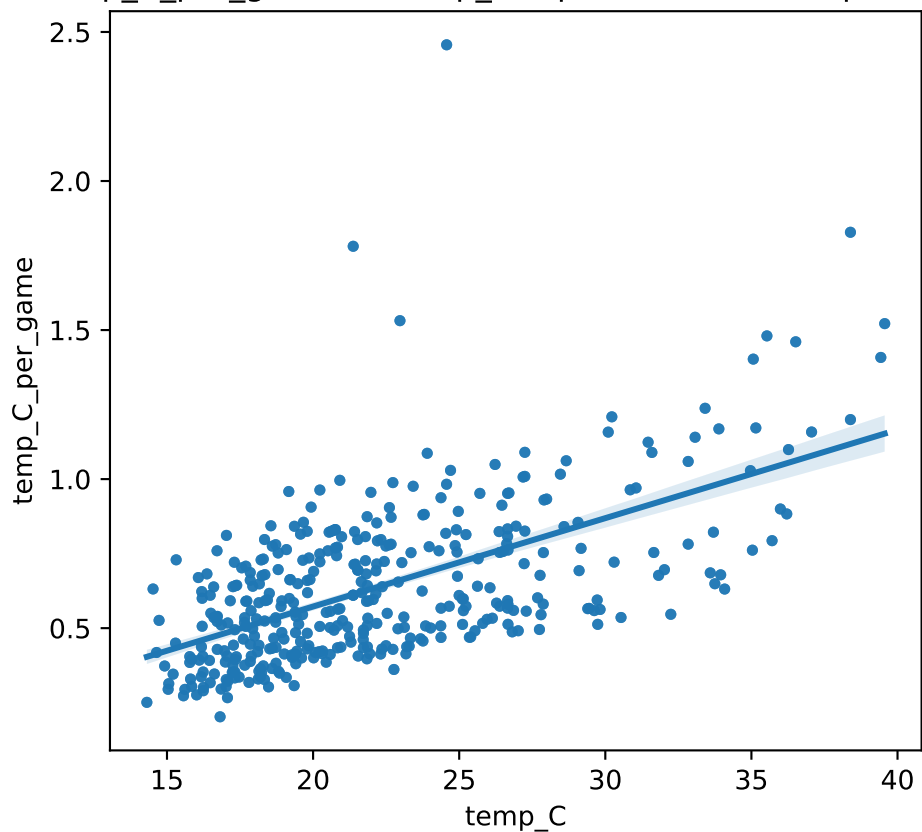
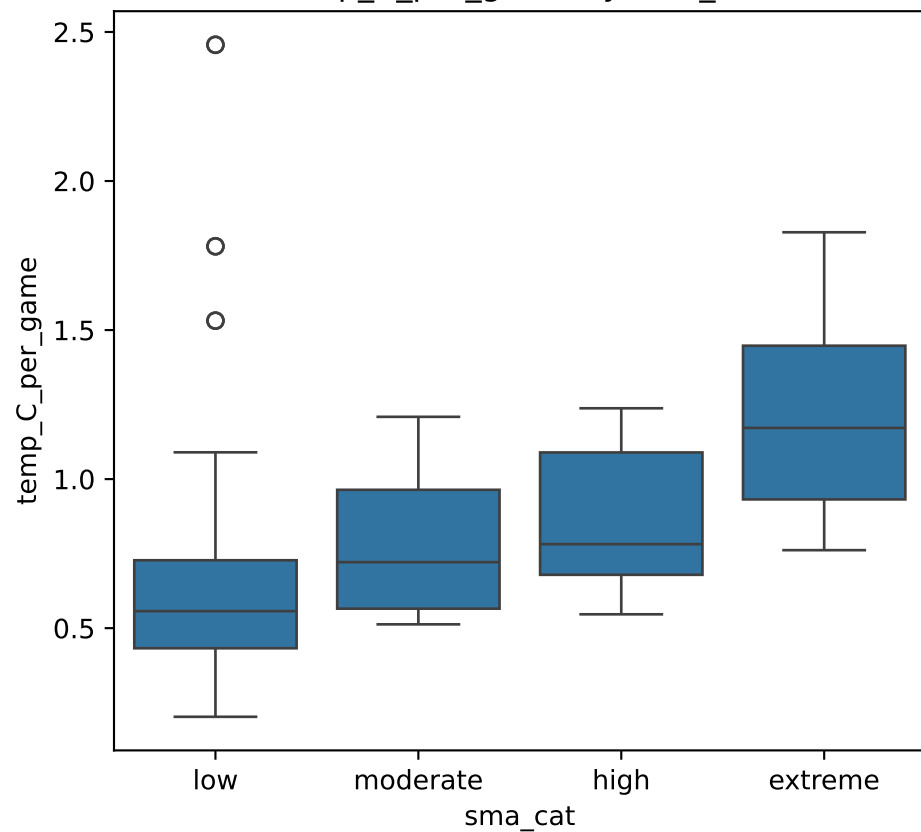
Dunn Post-hoc (p-değerleri)  
minutes\_final\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.024 | 0.001 | 0.357    |
| high     | 0.024   | 1.0   | 1.0   | 1.0      |
| low      | 0.001   | 1.0   | 1.0   | 0.961    |
| moderate | 0.357   | 1.0   | 0.961 | 1.0      |



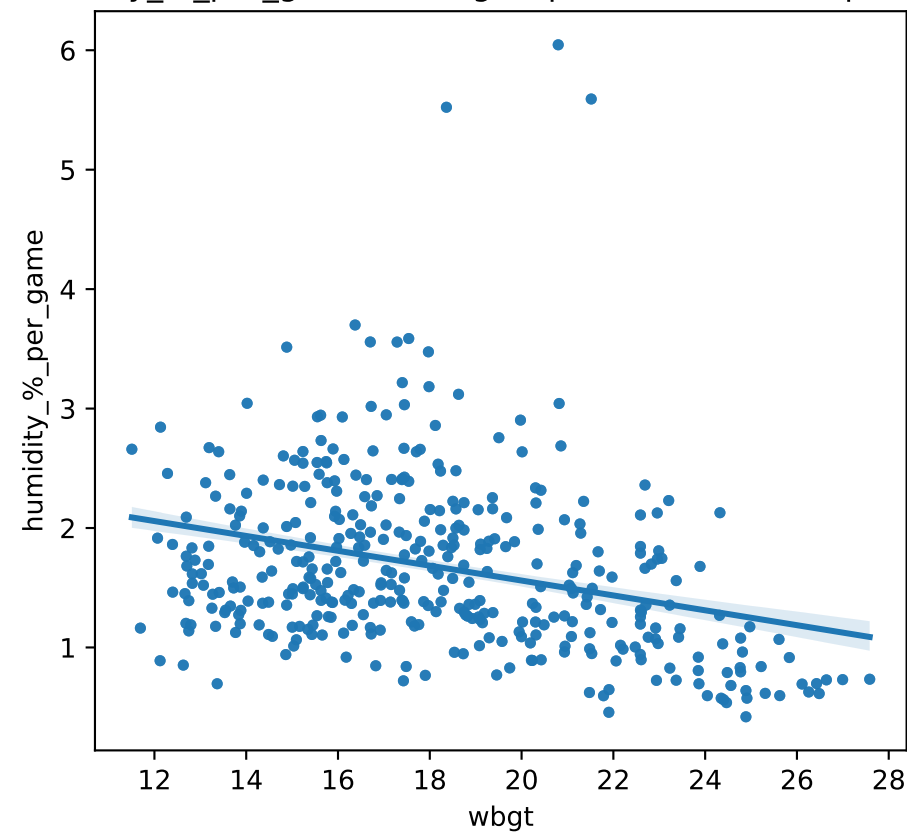
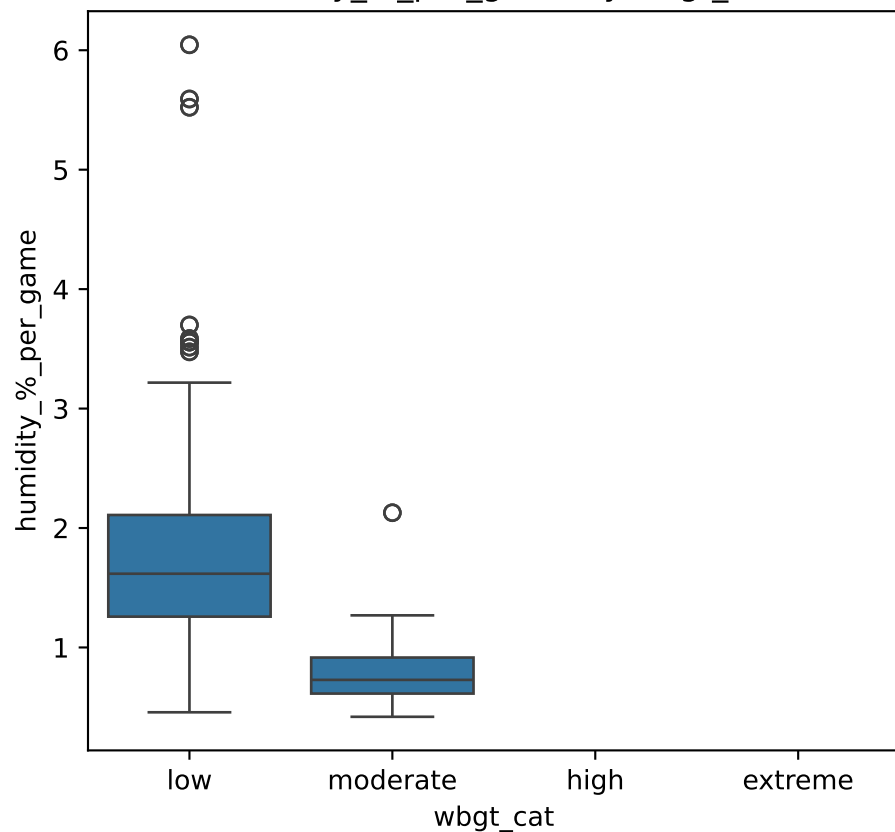
Dunn Post-hoc (p-değerleri)  
temp\_C\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



Dunn Post-hoc (p-değerleri)  
temp\_C\_per\_game by sma\_cat

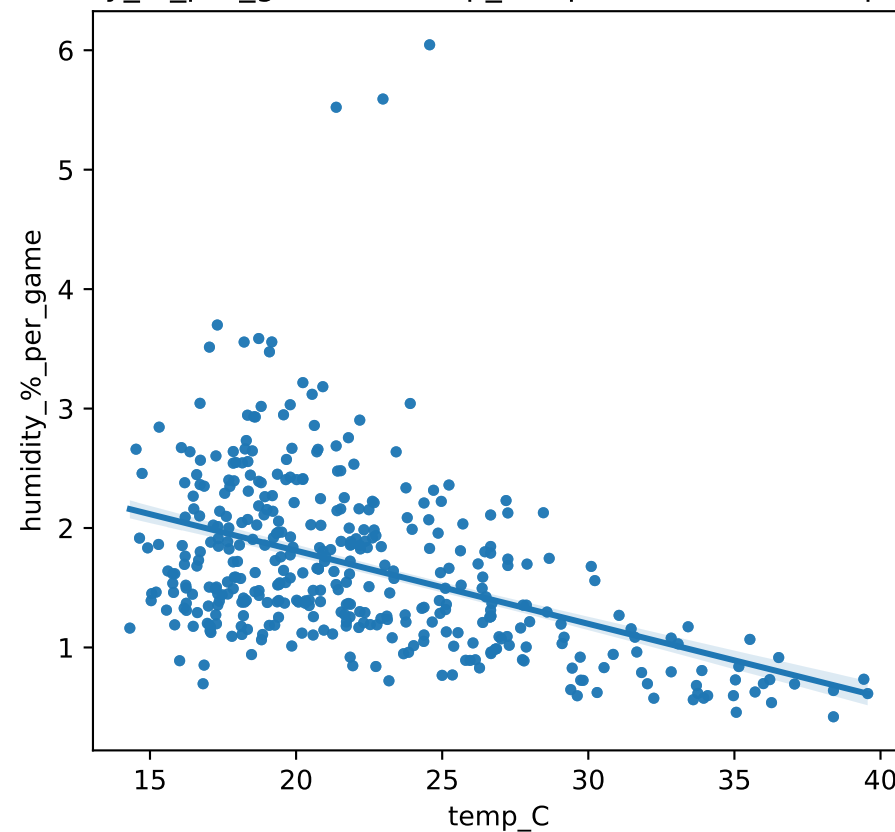
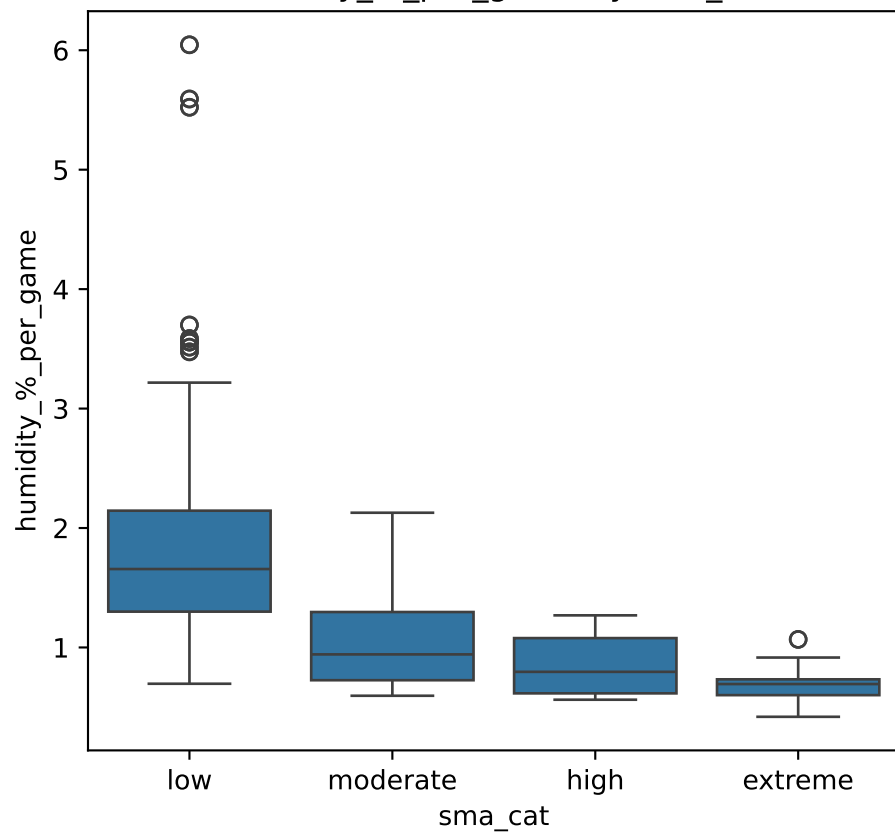
|          | extreme | high  | low | moderate |
|----------|---------|-------|-----|----------|
| extreme  | 1.0     | 0.164 | 0.0 | 0.004    |
| high     | 0.164   | 1.0   | 0.0 | 1.0      |
| low      | 0.0     | 0.0   | 1.0 | 0.0      |
| moderate | 0.004   | 1.0   | 0.0 | 1.0      |



Dunn Post-hoc (p-değerleri)  
humidity\_%\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

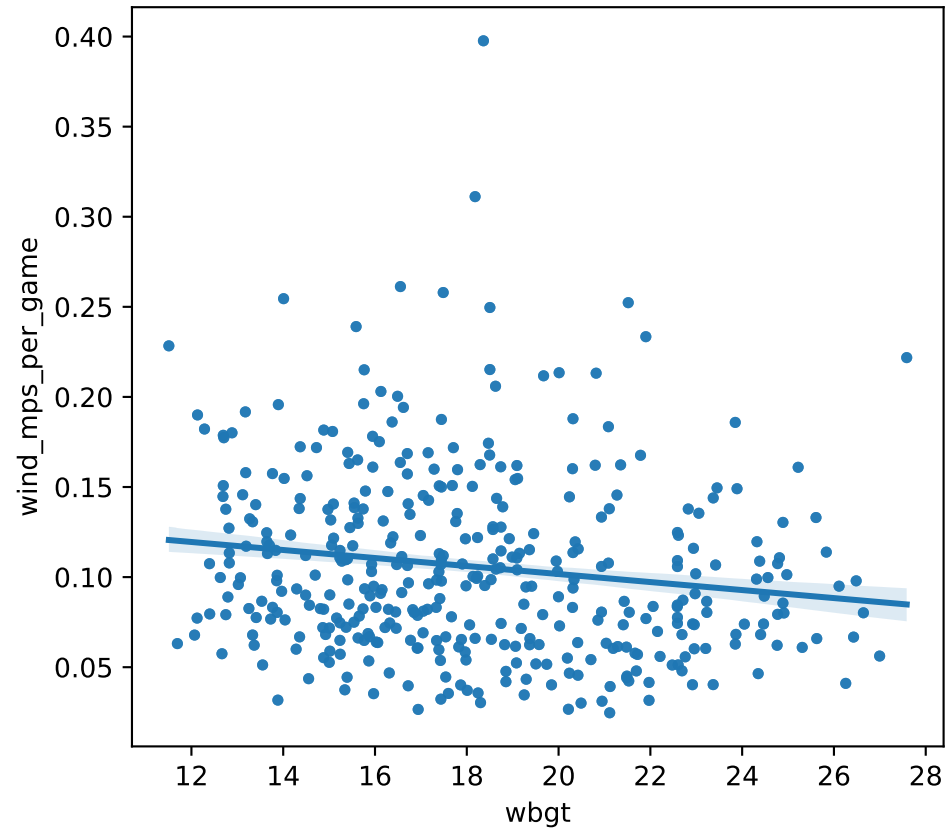
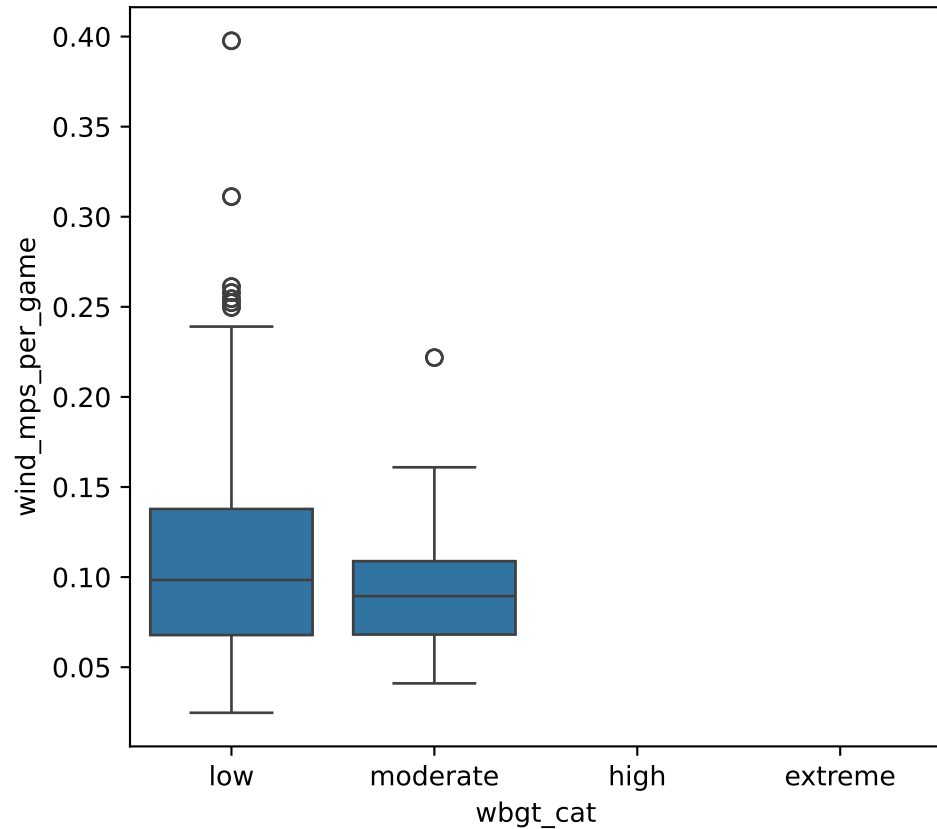




Dunn Post-hoc (p-değerleri)  
humidity\_%\_per\_game by sma\_cat

|          | extreme | high  | low | moderate |
|----------|---------|-------|-----|----------|
| extreme  | 1.0     | 1.0   | 0.0 | 0.068    |
| high     | 1.0     | 1.0   | 0.0 | 0.411    |
| low      | 0.0     | 0.0   | 1.0 | 0.0      |
| moderate | 0.068   | 0.411 | 0.0 | 1.0      |

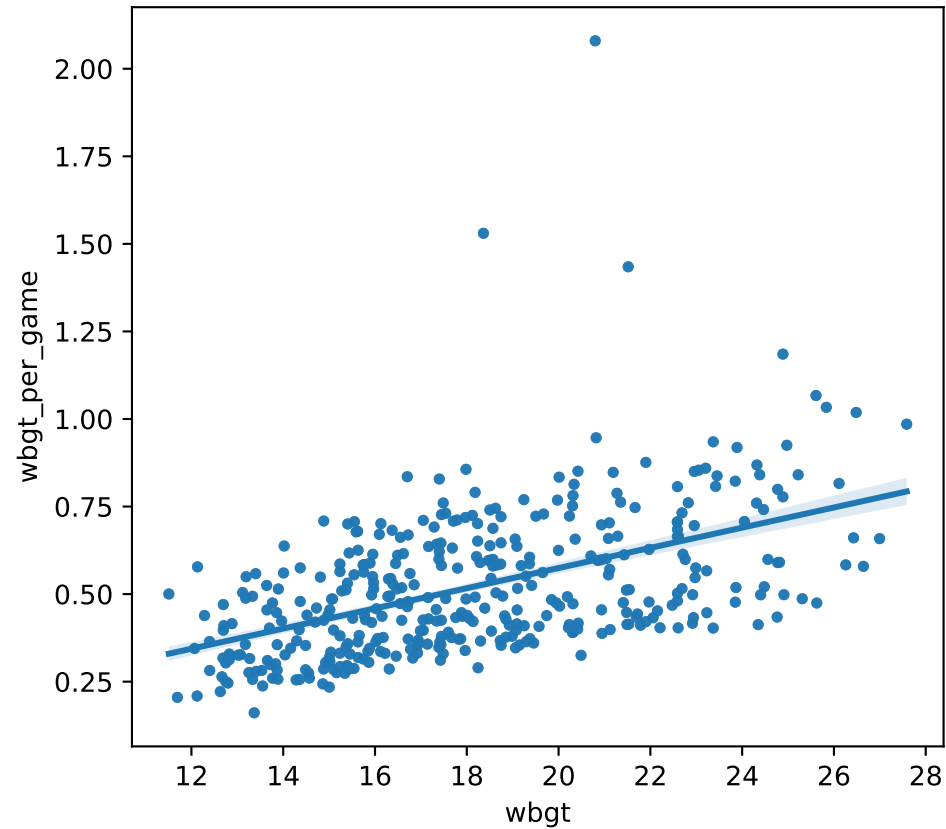
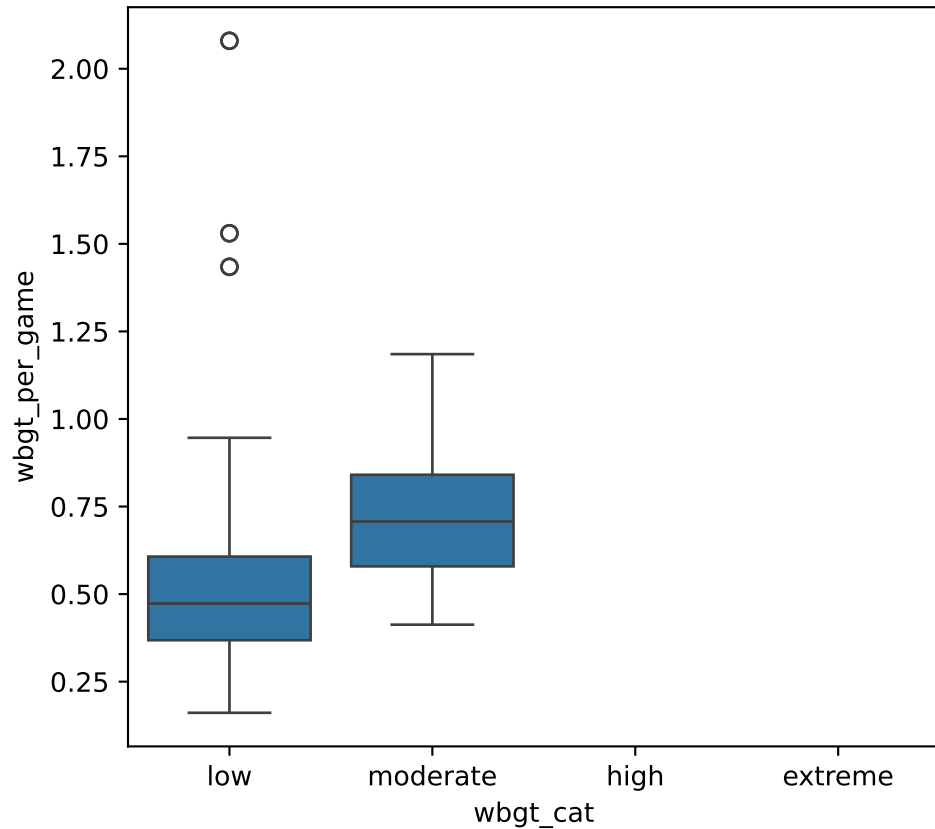
wind\_mps\_per\_game - wbgt\_cat  
Kruskal p=0.124, Jonckheere p=NA, Corr p=1.873724209973124e-07  
wind\_mps\_per\_game by wbgt\_cat  
wind\_mps\_per\_game vs wbgt (Spearman r=-0.19, p=0.000)



Dunn Post-hoc (p-değerleri)  
wind\_mps\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.124    |
| moderate | 0.124 | 1.0      |

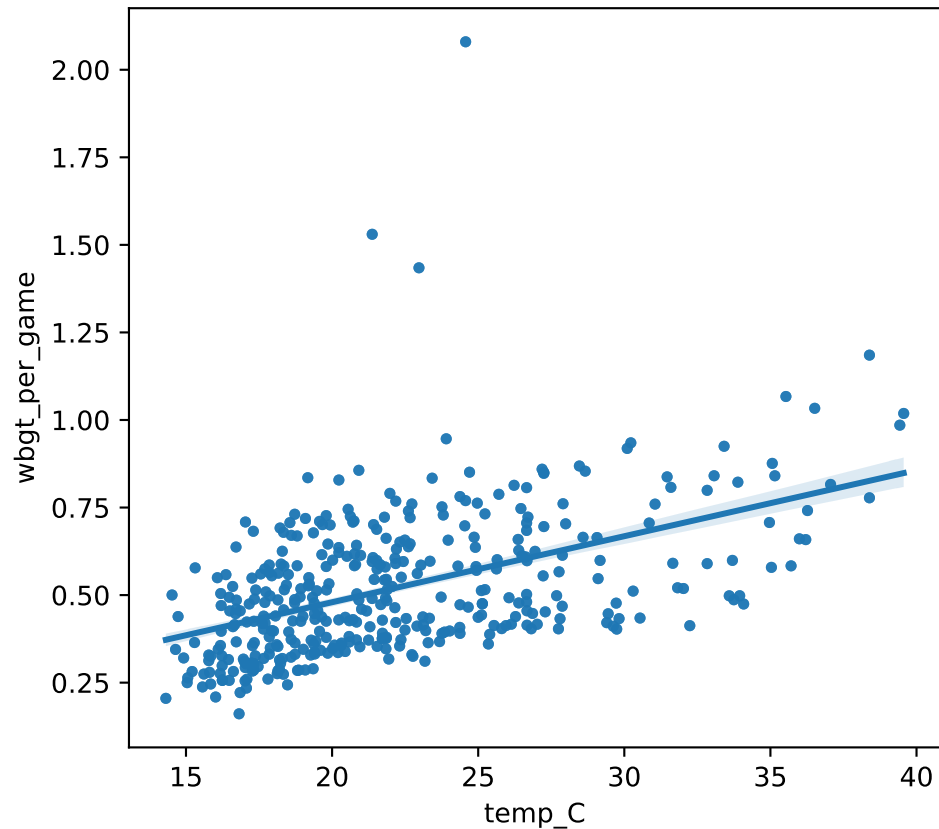
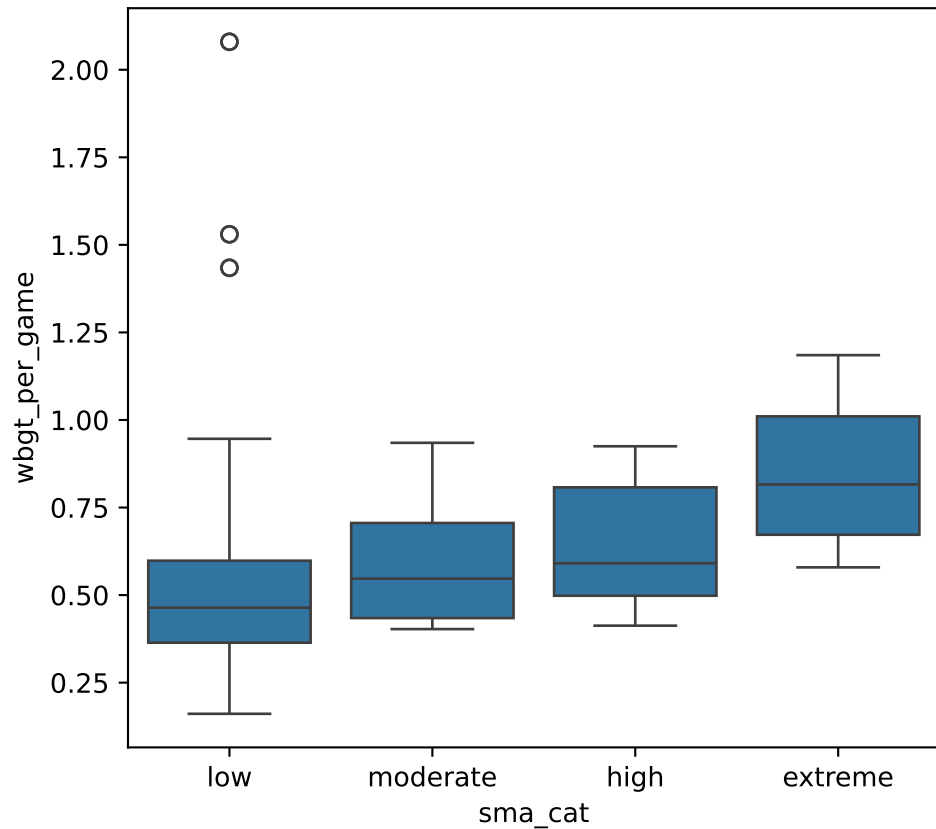
wbgt\_per\_game - wbgt\_cat  
Kruskal p=4.48e-14, Jonckheere p=NA, Corr p=8.592668298174426e-60  
wbgt\_per\_game by wbgt\_cat  
wbgt\_per\_game vs wbgt (Spearman r=0.54, p=0.000)



# Dunn Post-hoc (p-değerleri) wbgt\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

wbgt\_per\_game - sma\_cat  
Kruskal p=2.03e-19, Jonckheere p=NA, Corr p=4.291551349510601e-57  
wbgt\_per\_game by sma\_cat  
wbgt\_per\_game vs temp\_C (Spearman r=0.53, p=0.000)

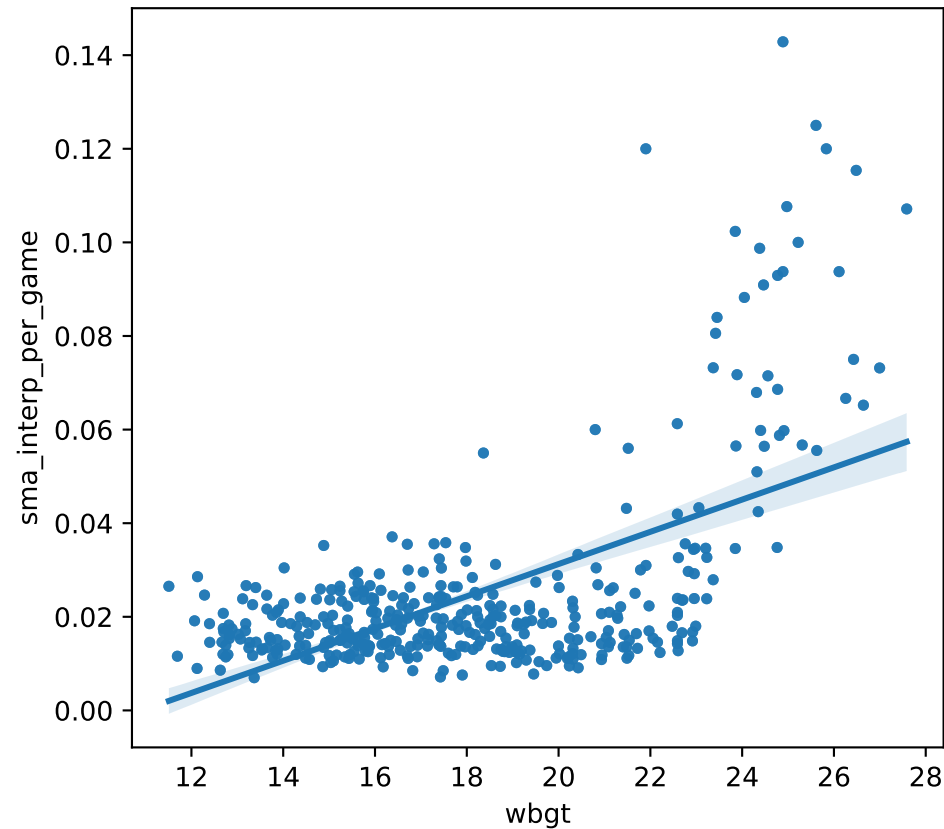
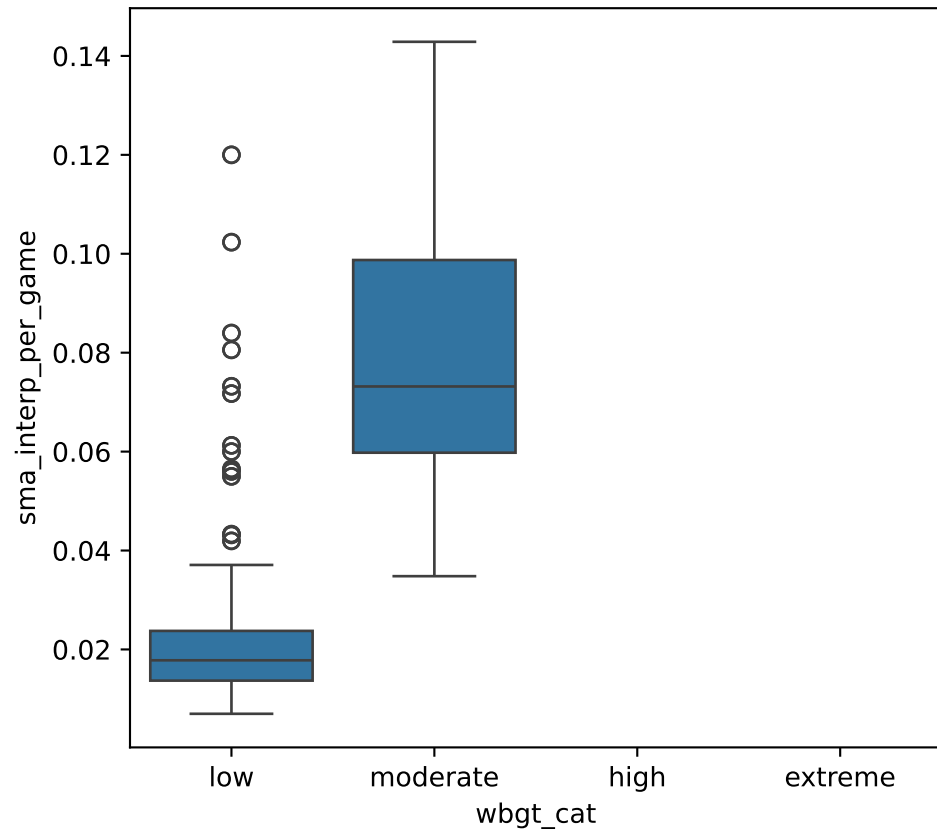


# Dunn Post-hoc (p-değerleri) wbgt\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.107 | 0.0   | 0.003    |
| high     | 0.107   | 1.0   | 0.0   | 1.0      |
| low      | 0.0     | 0.0   | 1.0   | 0.005    |
| moderate | 0.003   | 1.0   | 0.005 | 1.0      |



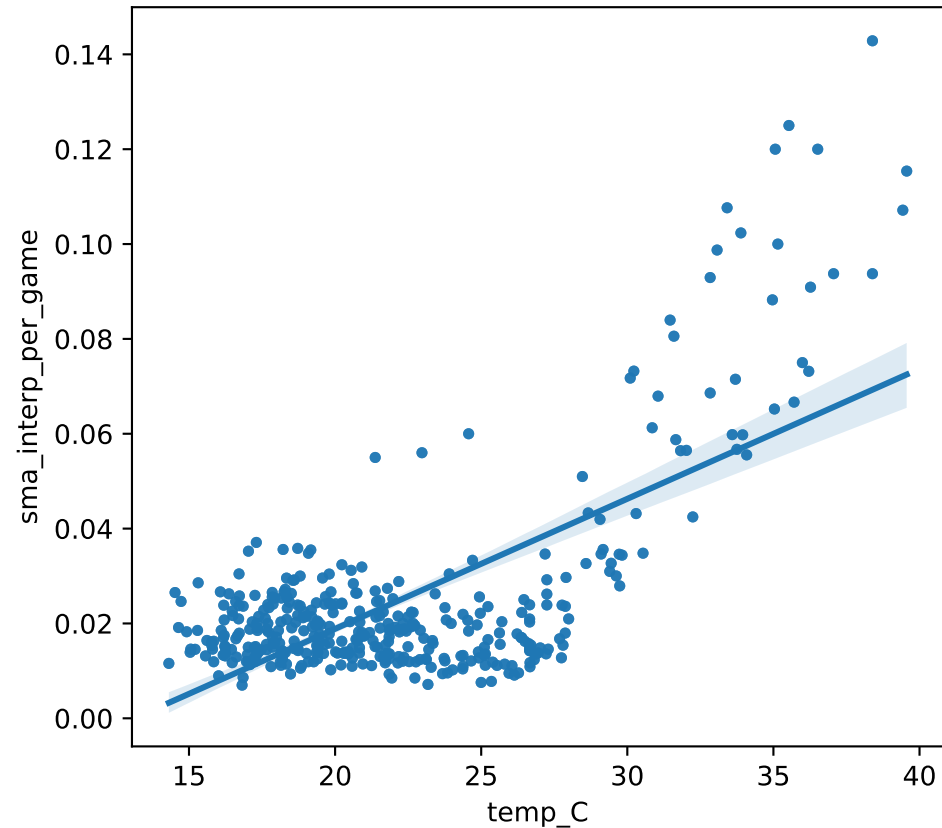
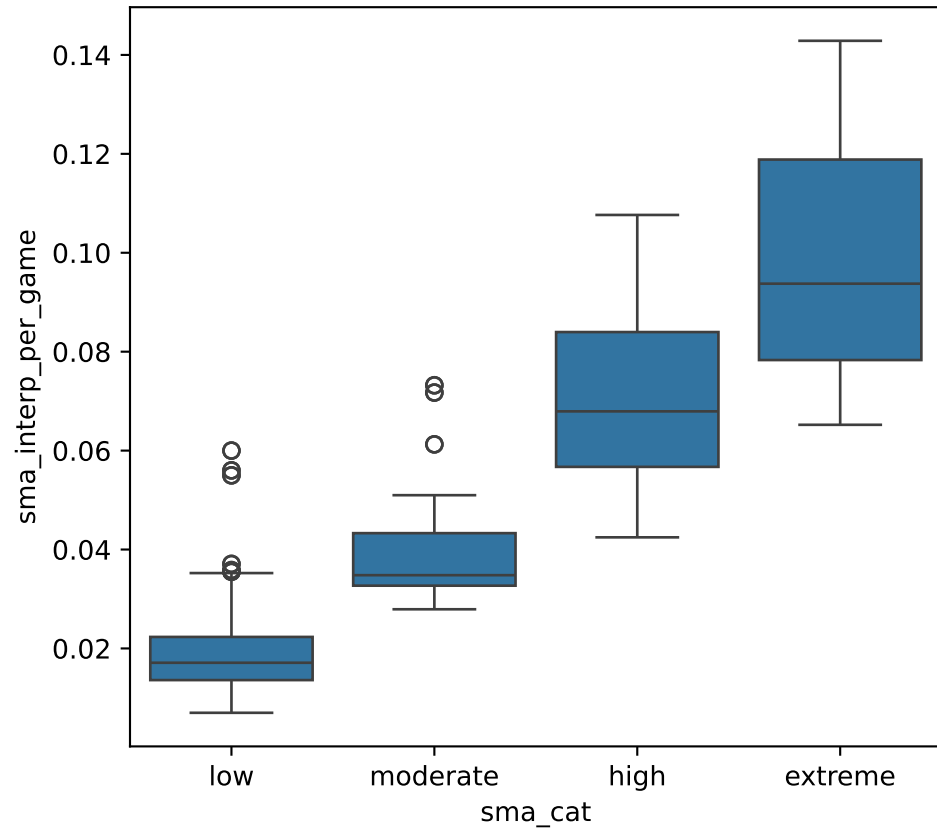
sma\_interp\_per\_game - wbgt\_cat  
Kruskal p=7.44e-35, Jonckheere p=NA, Corr p=7.312357774610405e-24  
sma\_interp\_per\_game by wbgt\_cat  
sma\_interp\_per\_game vs wbgt (Spearman r=0.35, p=0.000)



Dunn Post-hoc (p-değerleri)  
sma\_interp\_per\_game by wbgt\_cat

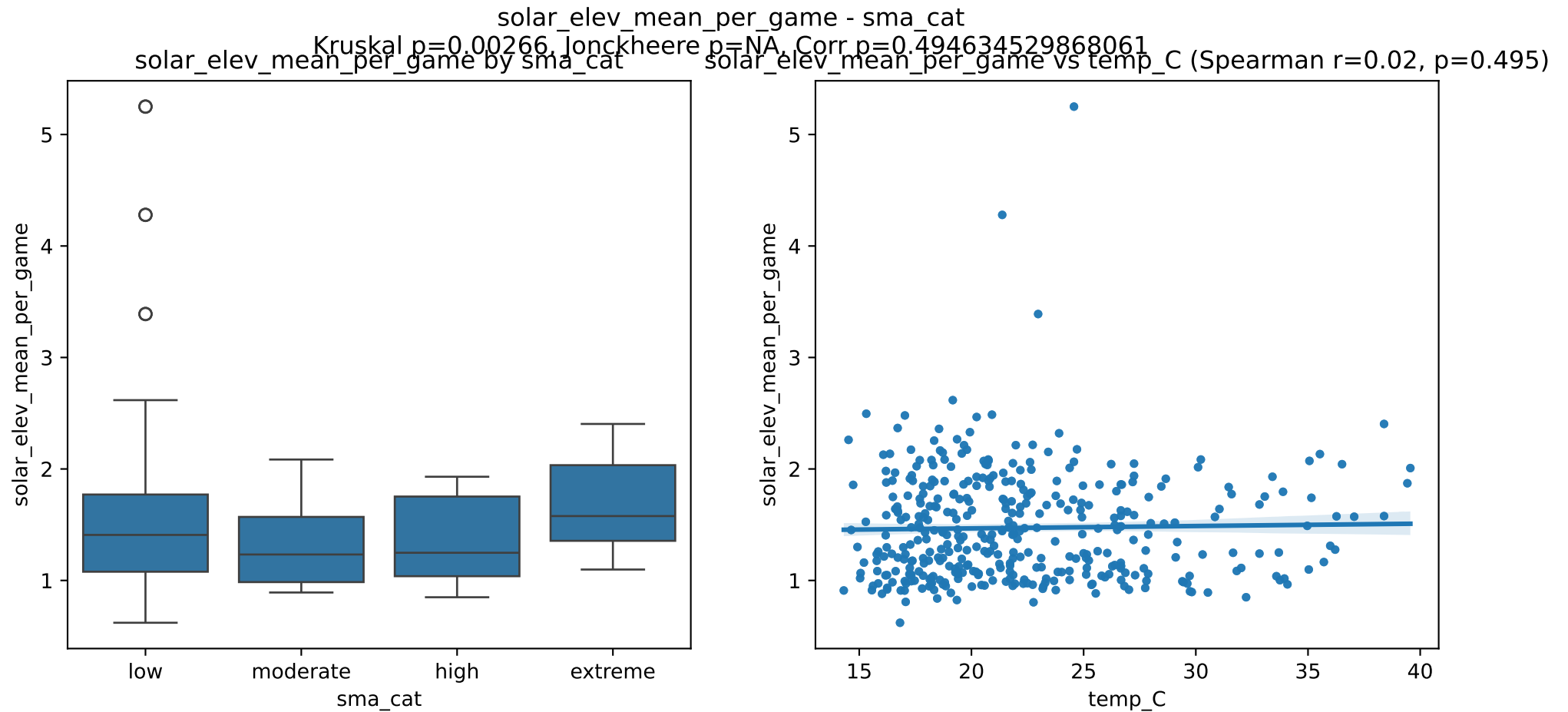
|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

sma\_interp\_per\_game - sma\_cat  
Kruskal p=8.75e-54, Jonckheere p=NA, Corr p=5.285140444727264e-14  
sma\_interp\_per\_game by sma\_cat  
sma\_interp\_per\_game vs temp\_C (Spearman r=0.27, p=0.000)



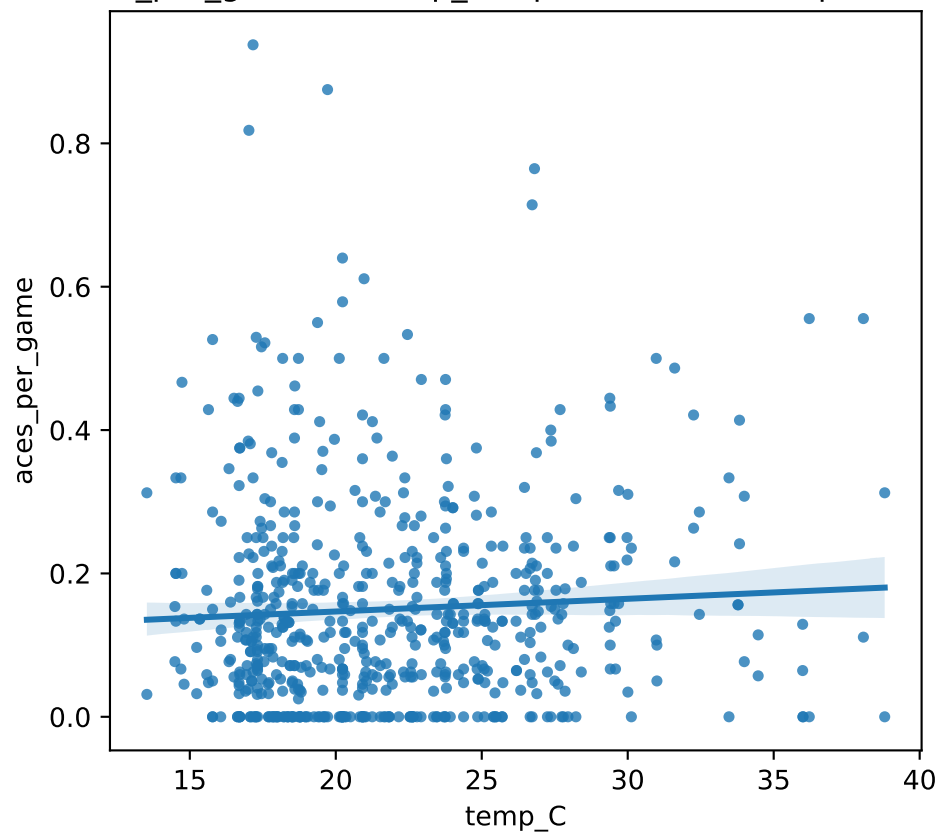
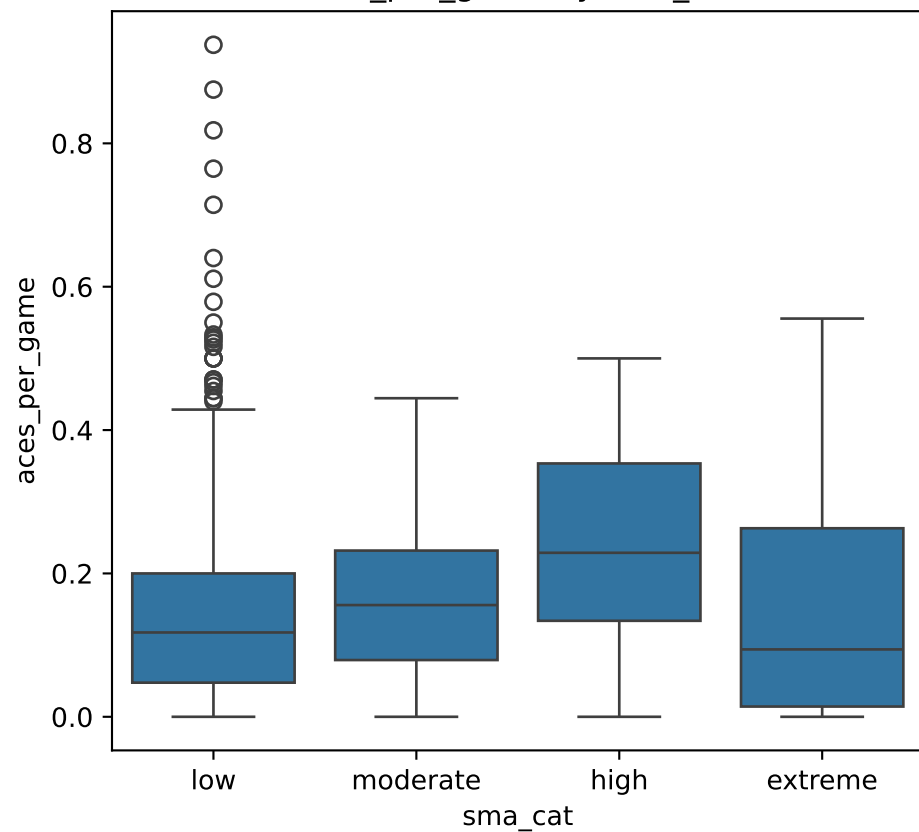
Dunn Post-hoc (p-değerleri)  
sma\_interp\_per\_game by sma\_cat

|          | extreme | high | low | moderate |
|----------|---------|------|-----|----------|
| extreme  | 1.0     | 1.0  | 0.0 | 1.0      |
| high     | 1.0     | 1.0  | 0.0 | 1.0      |
| low      | 0.0     | 0.0  | 1.0 | 0.0      |
| moderate | 1.0     | 1.0  | 0.0 | 1.0      |



Dunn Post-hoc (p-değerleri)  
solar\_elev\_mean\_per\_game by sma\_cat

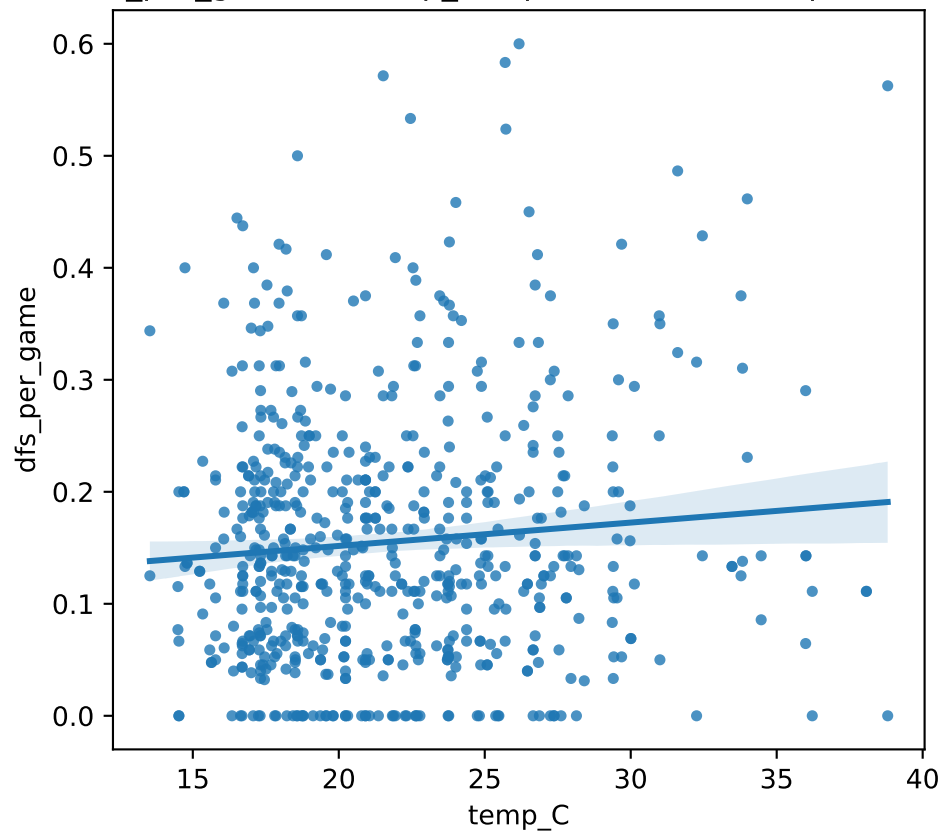
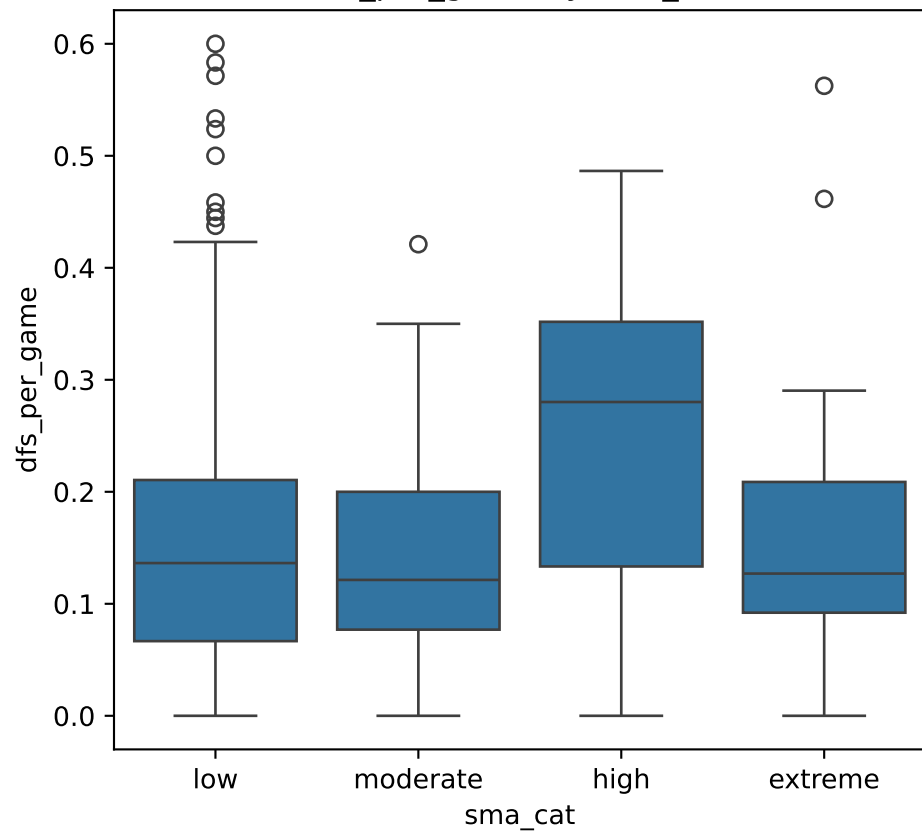
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.014 | 0.012 | 0.003    |
| high     | 0.014   | 1.0   | 1.0   | 1.0      |
| low      | 0.012   | 1.0   | 1.0   | 0.529    |
| moderate | 0.003   | 1.0   | 0.529 | 1.0      |



# Dunn Post-hoc (p-değerleri) aces\_per\_game by sma\_cat

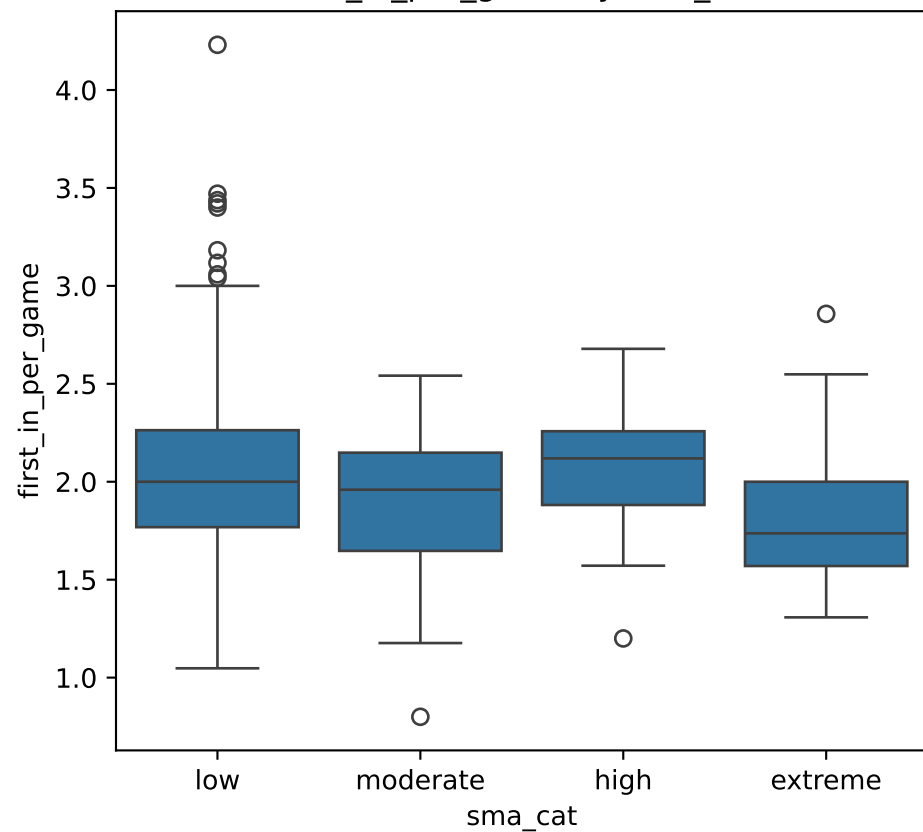
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.213 | 1.0   | 1.0      |
| high     | 0.213   | 1.0   | 0.042 | 1.0      |
| low      | 1.0     | 0.042 | 1.0   | 0.75     |
| moderate | 1.0     | 1.0   | 0.75  | 1.0      |



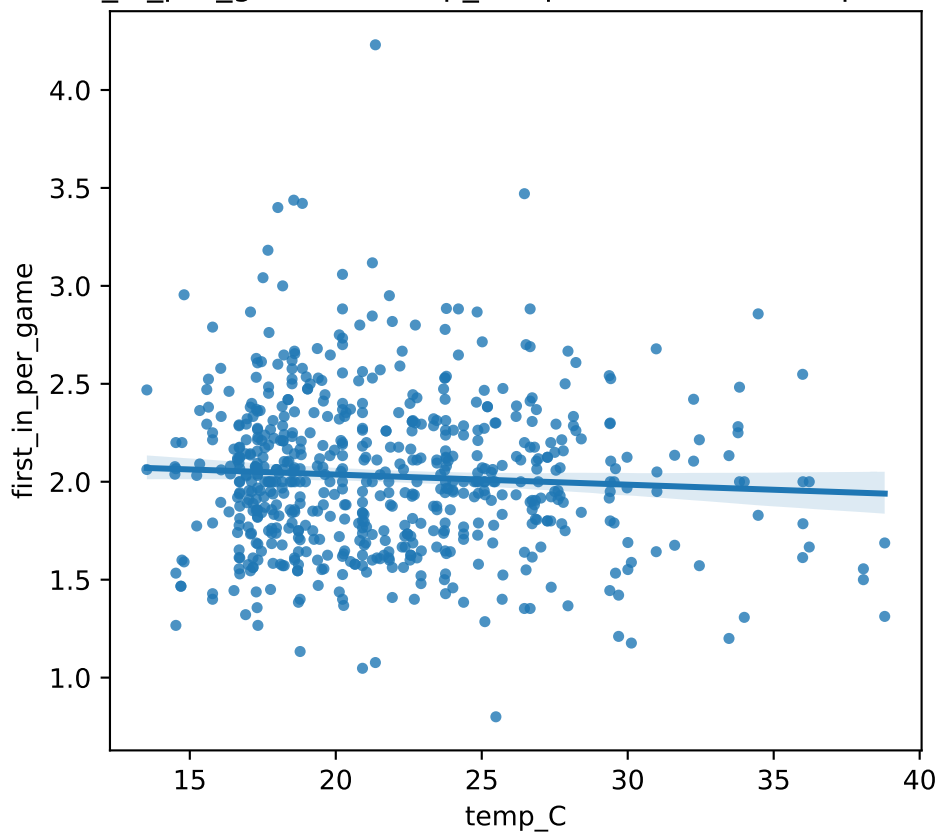


# Dunn Post-hoc (p-değerleri) dfs\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.437 | 1.0   | 1.0      |
| high     | 0.437   | 1.0   | 0.053 | 0.138    |
| low      | 1.0     | 0.053 | 1.0   | 1.0      |
| moderate | 1.0     | 0.138 | 1.0   | 1.0      |

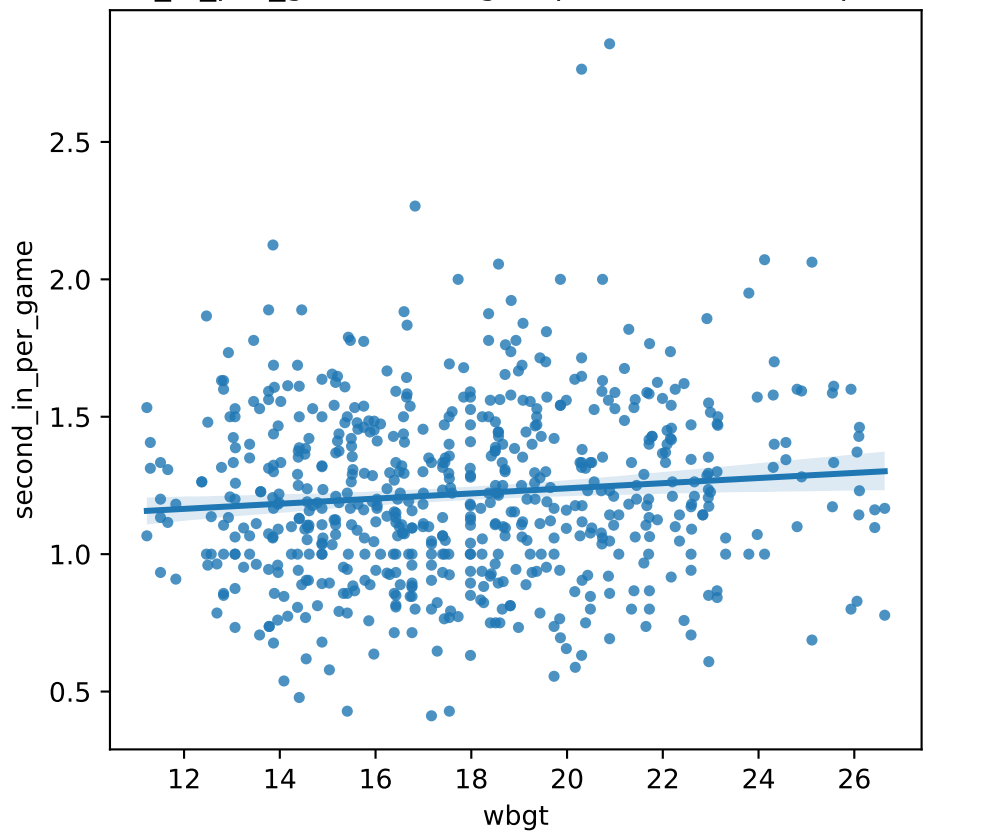
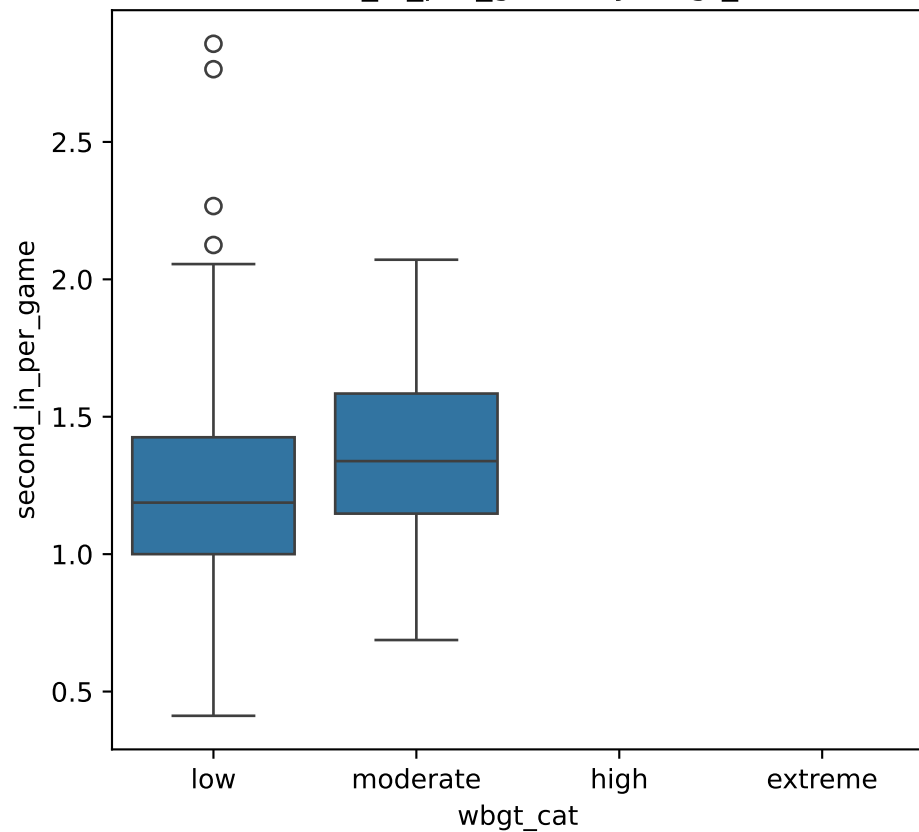


first\_in\_per\_game - sma\_cat  
Kruskal p=0.0602, Jonckheere p=NA, Corr p=0.3701547756882626  
first\_in\_per\_game vs temp\_C (Spearman r=-0.04, p=0.370)



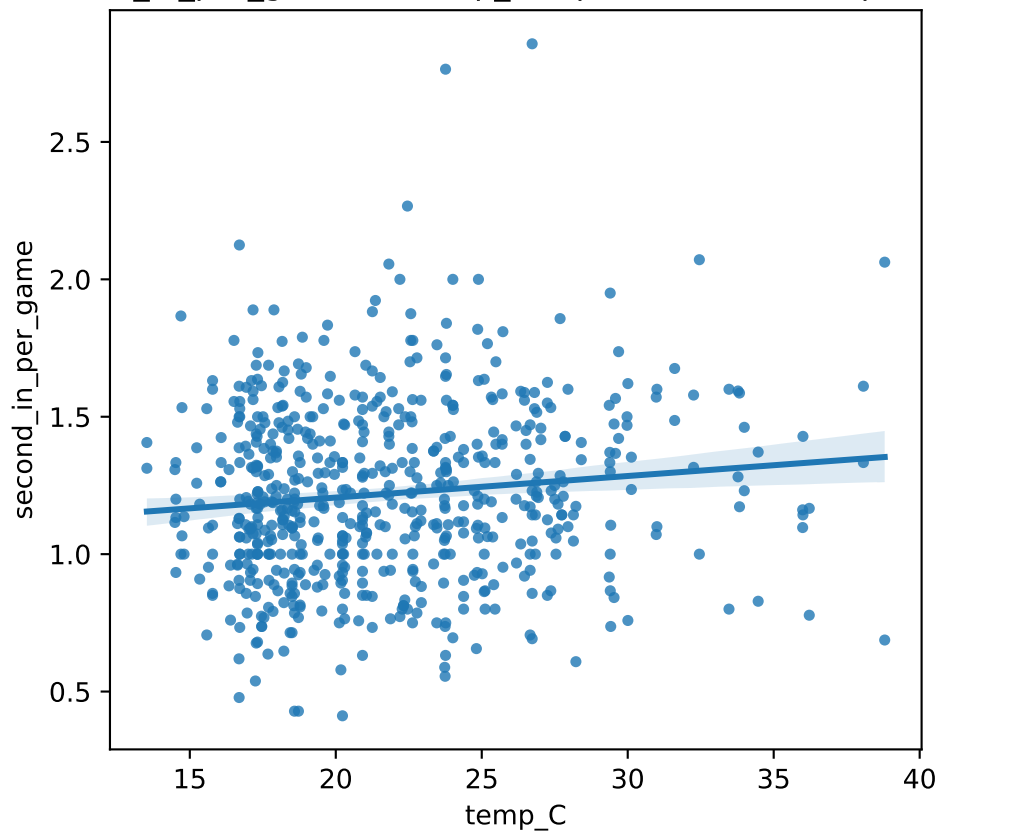
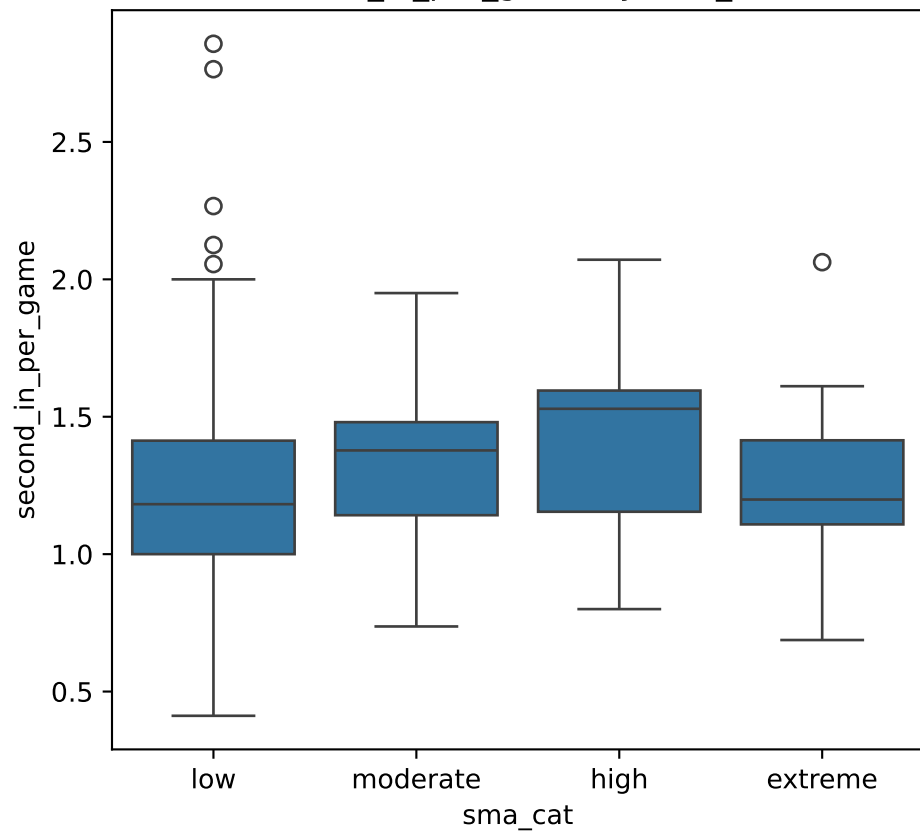
Dunn Post-hoc (p-değerleri)  
first\_in\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.247 | 0.154 | 1.0      |
| high     | 0.247   | 1.0   | 1.0   | 1.0      |
| low      | 0.154   | 1.0   | 1.0   | 0.832    |
| moderate | 1.0     | 1.0   | 0.832 | 1.0      |



Dunn Post-hoc (p-değerleri)  
second\_in\_per\_game by wbgmt\_cat

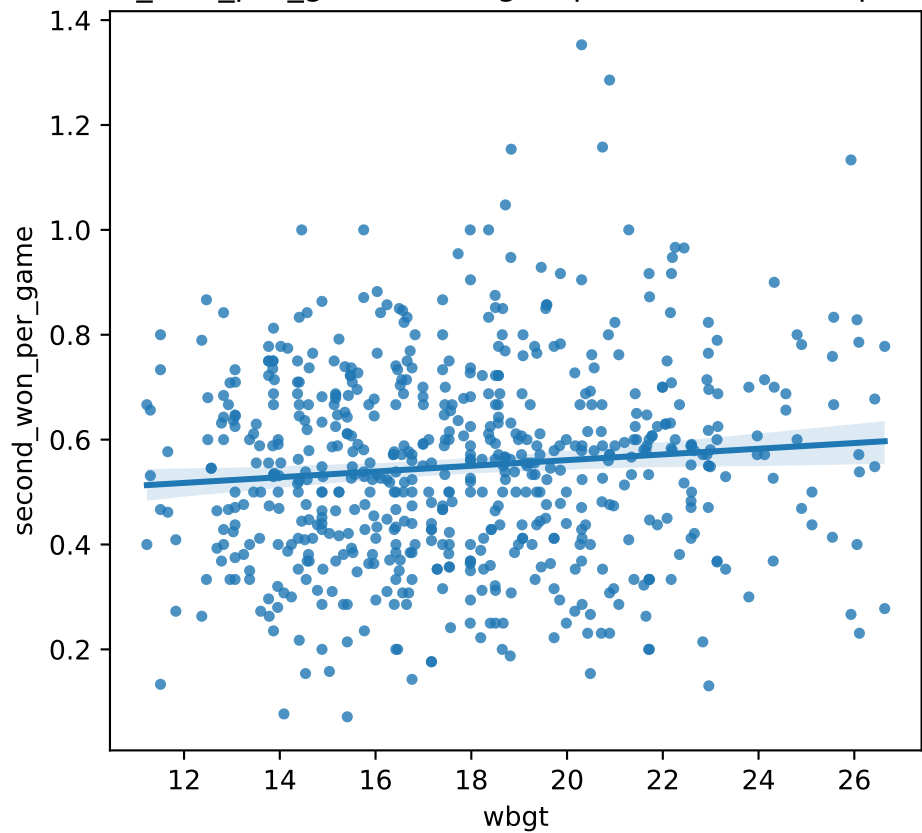
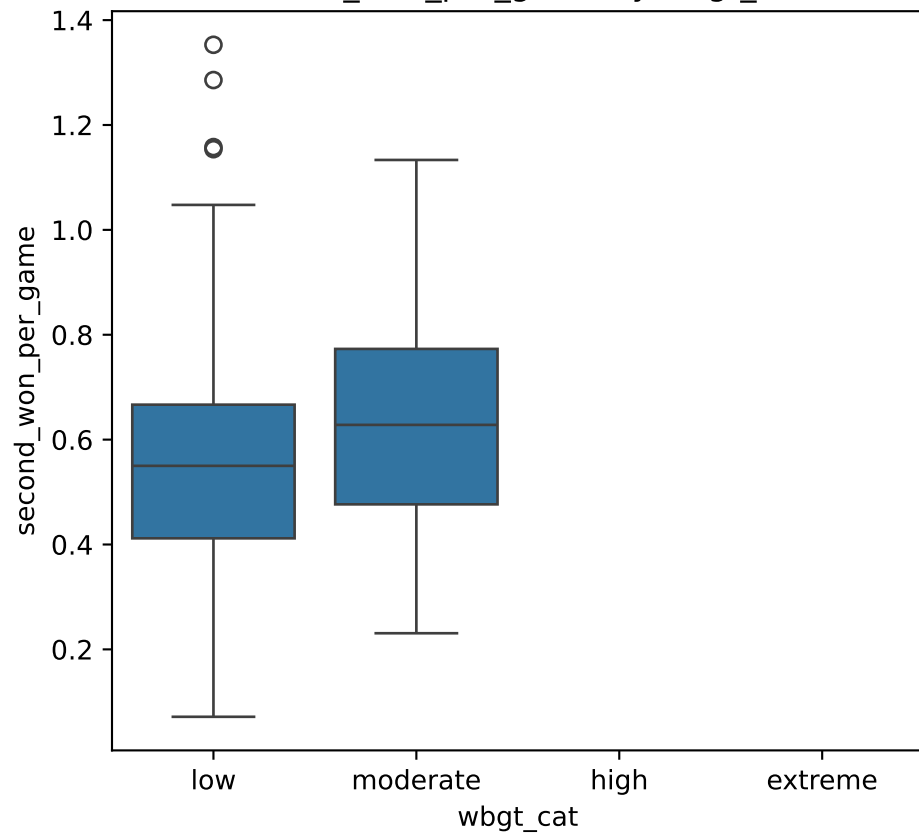
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.044    |
| moderate | 0.044 | 1.0      |



Dunn Post-hoc (p-değerleri)  
second\_in\_per\_game by sma\_cat

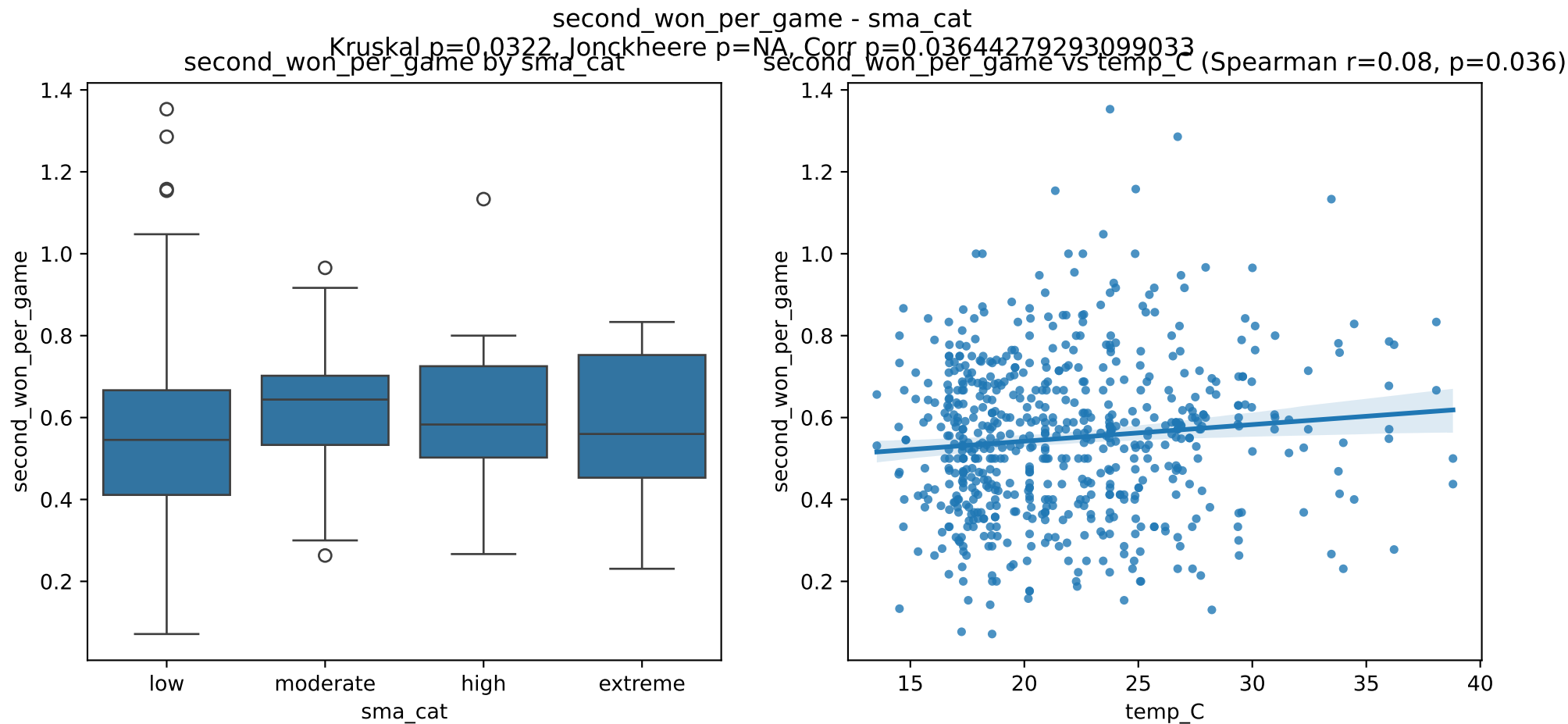
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.828 | 1.0   | 1.0      |
| high     | 0.828   | 1.0   | 0.07  | 1.0      |
| low      | 1.0     | 0.07  | 1.0   | 0.111    |
| moderate | 1.0     | 1.0   | 0.111 | 1.0      |





Dunn Post-hoc (p-değerleri)  
second\_won\_per\_game by wbgt\_cat

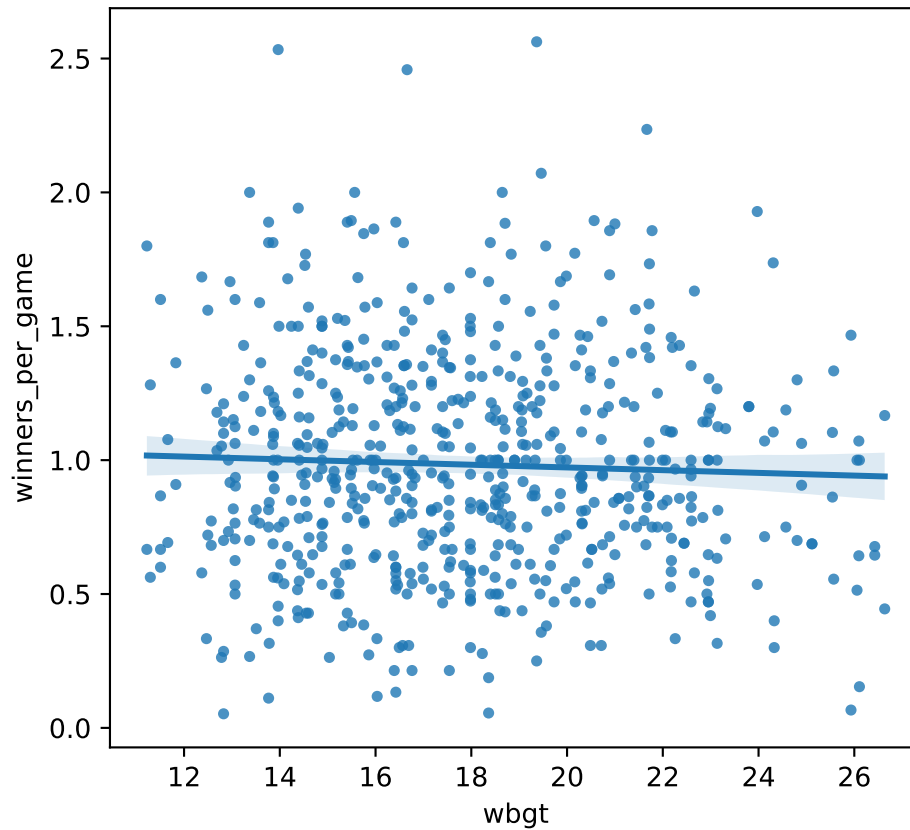
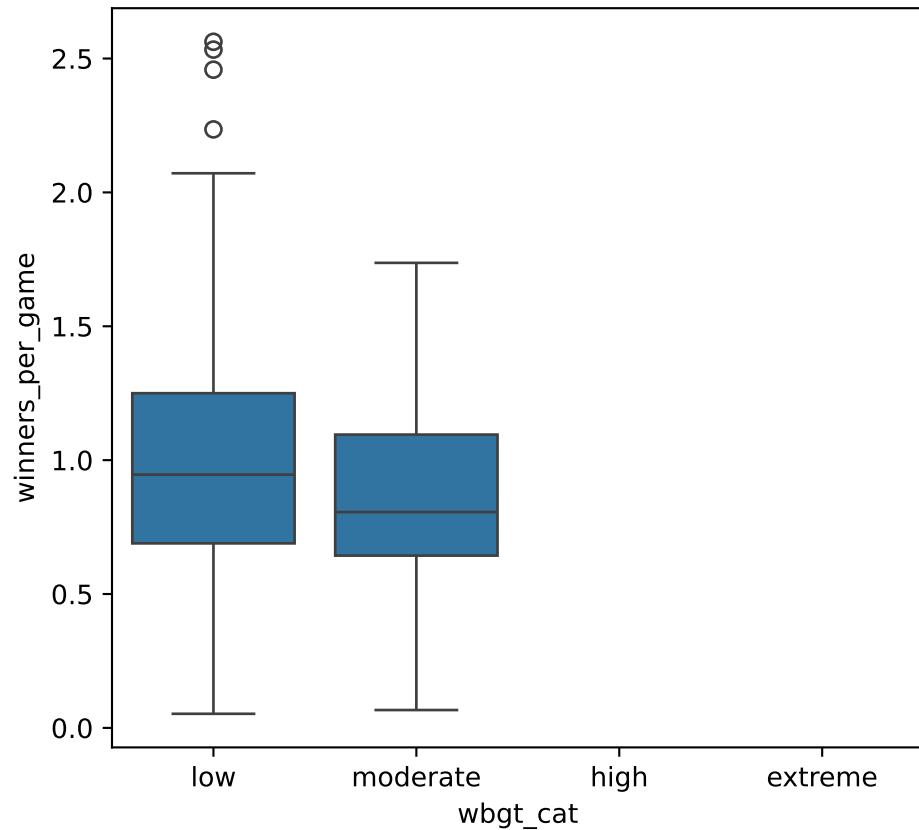
|          | low  | moderate |
|----------|------|----------|
| low      | 1.0  | 0.06     |
| moderate | 0.06 | 1.0      |



Dunn Post-hoc (p-değerleri)  
second\_won\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 1.0   | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 1.0     | 1.0  | 1.0   | 0.042    |
| moderate | 1.0     | 1.0  | 0.042 | 1.0      |

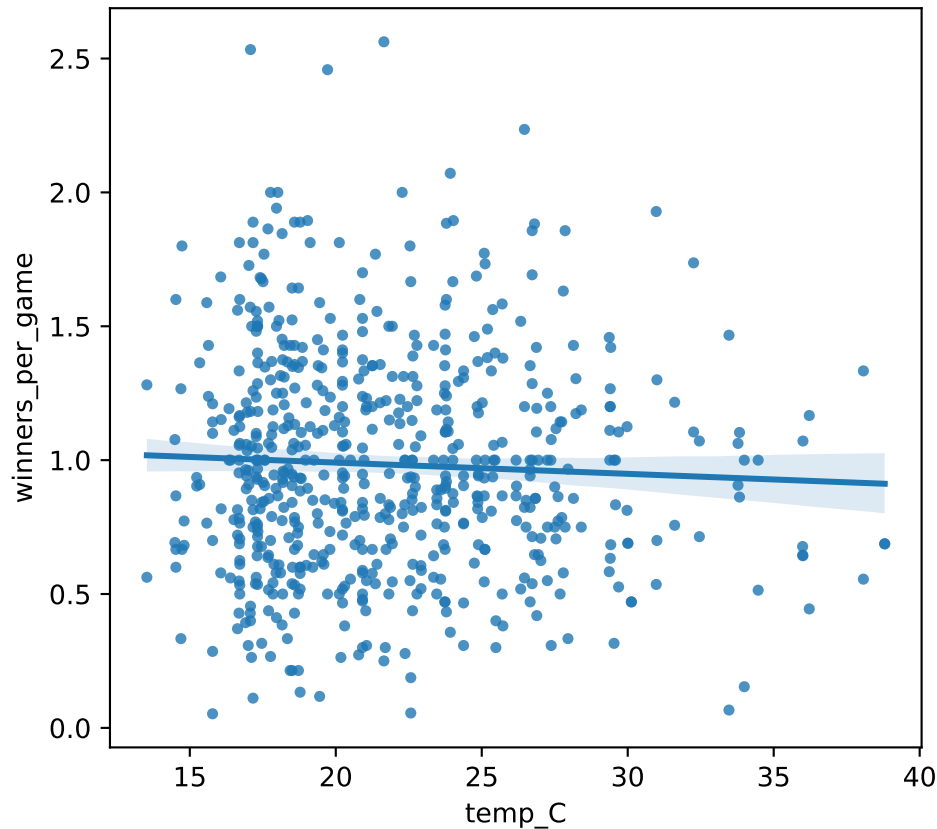
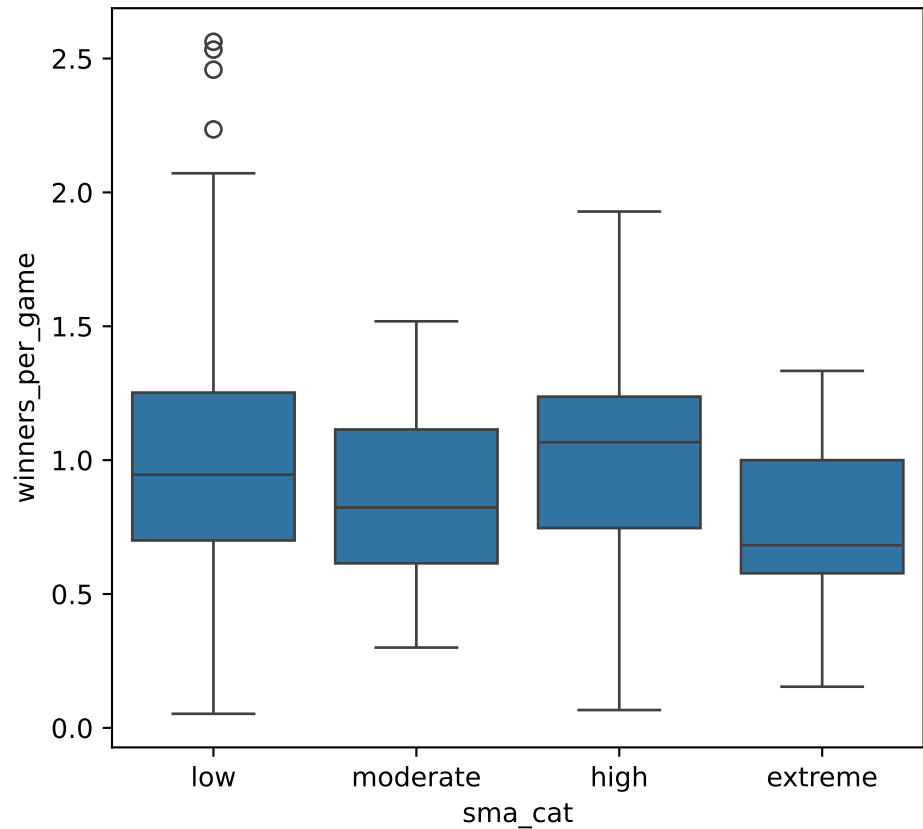
winners\_per\_game - wbgt\_cat  
Kruskal p=0.089, Jonckheere p=NA, Corr p=0.4710430742582892  
winners\_per\_game by wbgt\_cat  
winners\_per\_game vs wbgt (Spearman r=-0.03, p=0.471)



Dunn Post-hoc (p-değerleri)  
winners\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.089    |
| moderate | 0.089 | 1.0      |

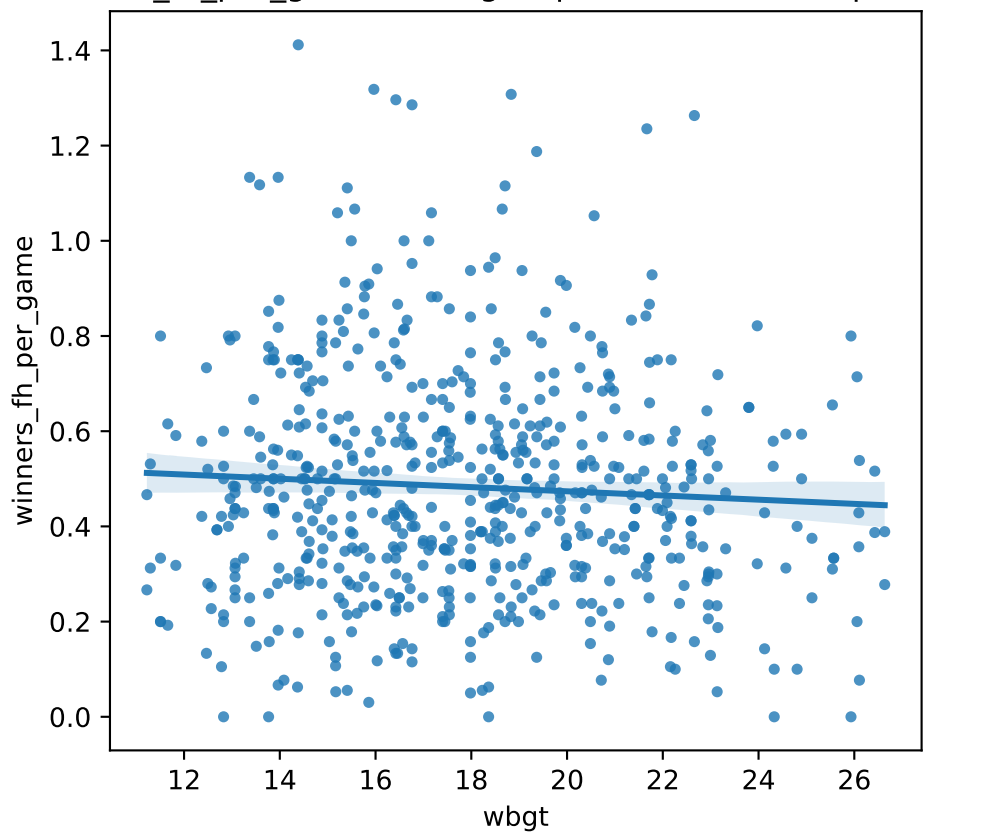
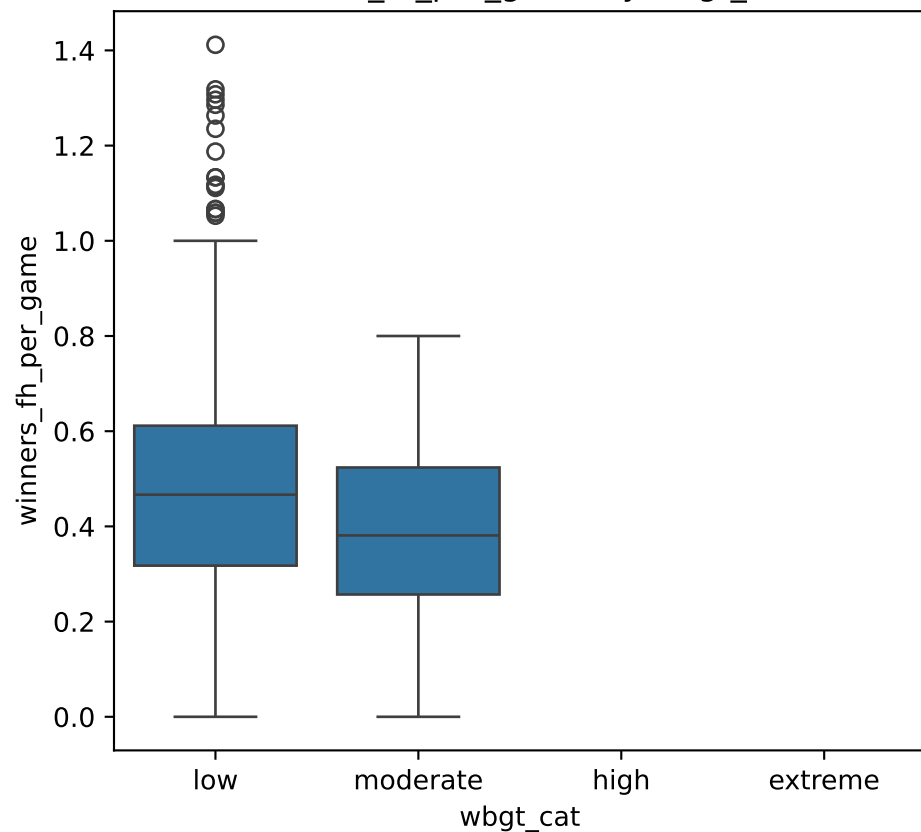
winners\_per\_game - sma\_cat  
Kruskal p=0.0563, Jonckheere p=NA, Corr p=0.5132621046007203  
winners\_per\_game by sma\_cat  
winners\_per\_game vs temp\_C (Spearman r=-0.03, p=0.513)



Dunn Post-hoc (p-değerleri)  
winners\_per\_game by sma\_cat

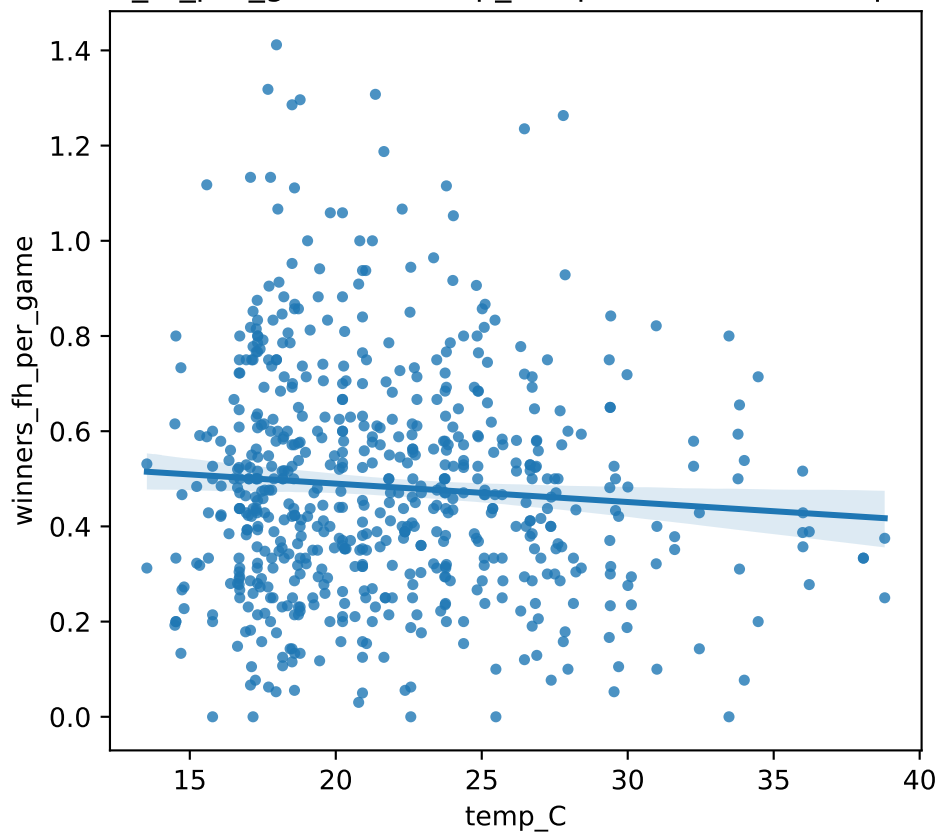
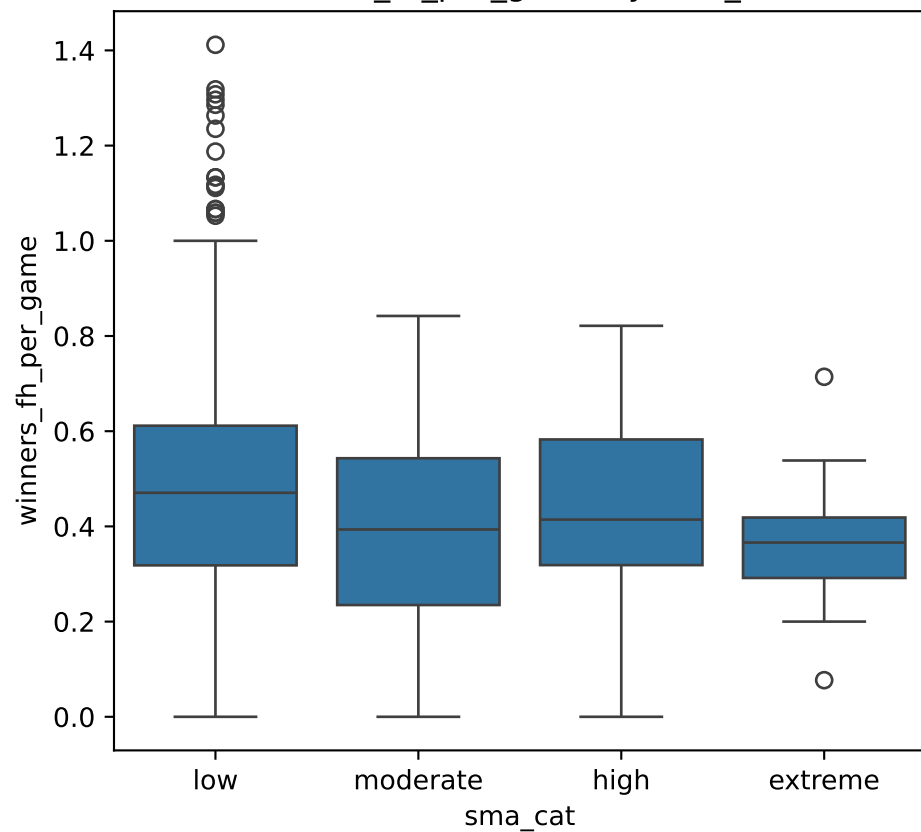
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.309 | 0.183 | 1.0      |
| high     | 0.309   | 1.0   | 1.0   | 0.974    |
| low      | 0.183   | 1.0   | 1.0   | 0.588    |
| moderate | 1.0     | 0.974 | 0.588 | 1.0      |





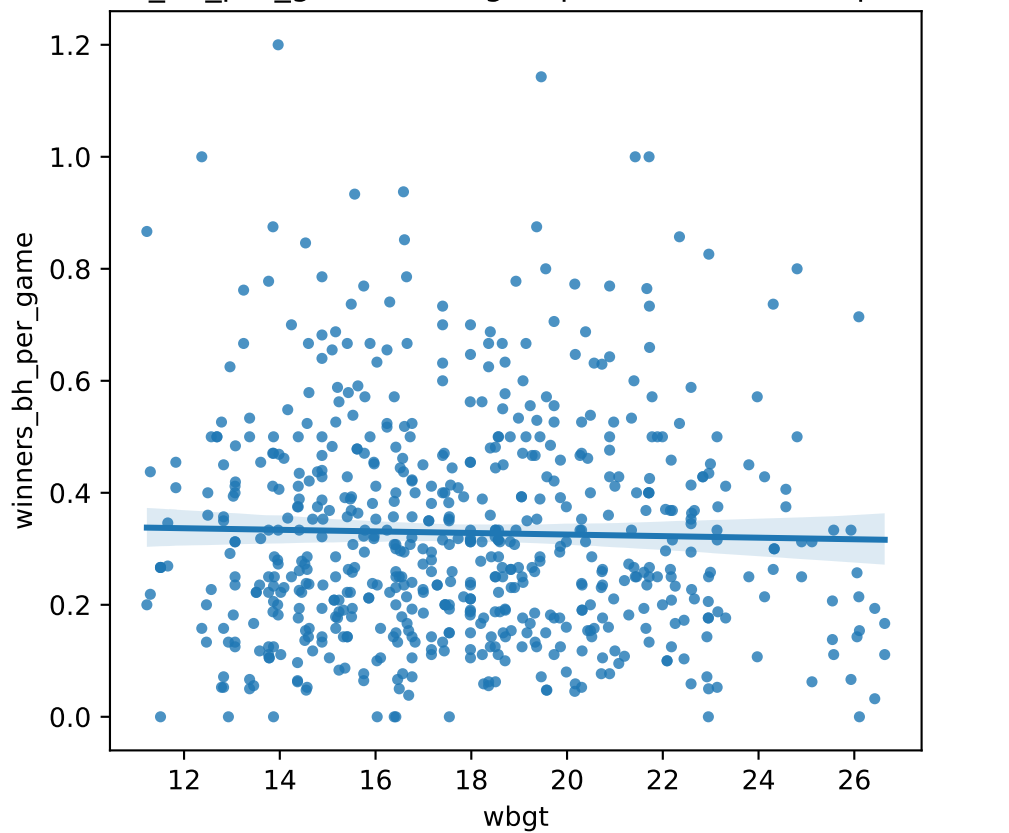
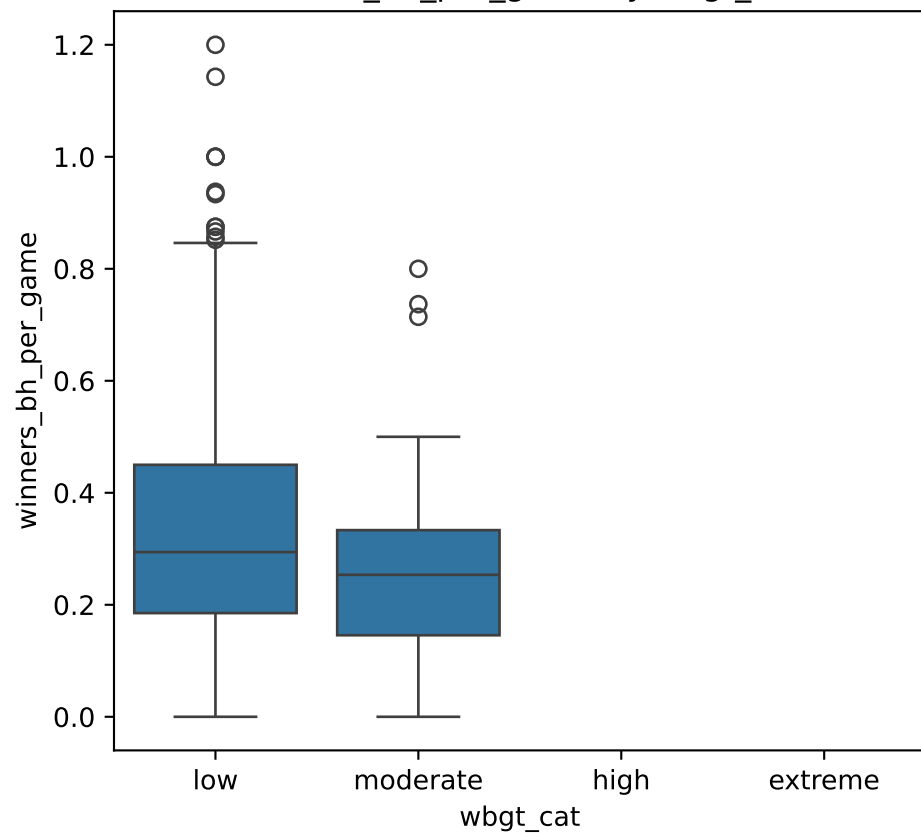
Dunn Post-hoc (p-değerleri)  
winners\_fh\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.022    |
| moderate | 0.022 | 1.0      |



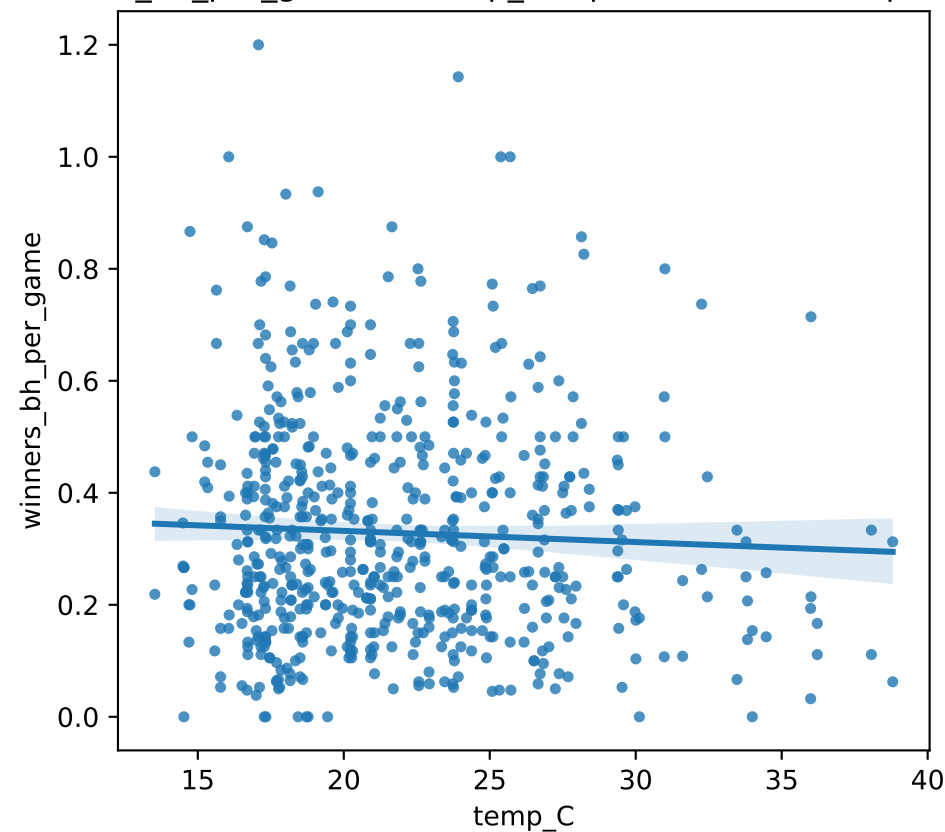
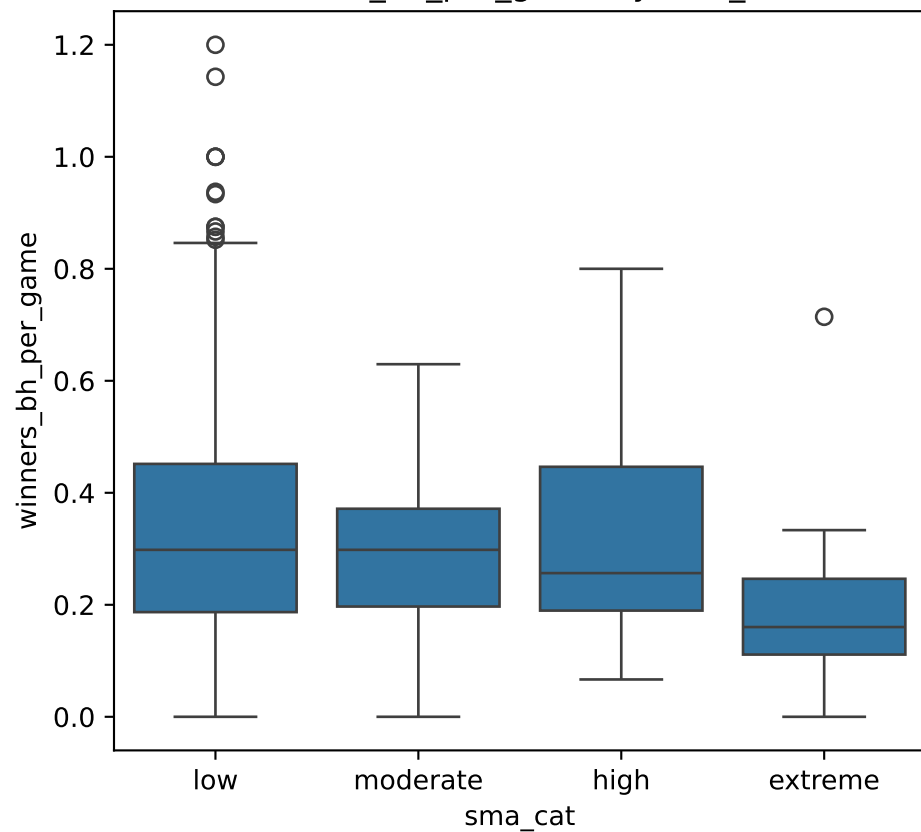
Dunn Post-hoc (p-değerleri)  
winners\_fh\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.281 | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 0.281   | 1.0  | 1.0   | 0.299    |
| moderate | 1.0     | 1.0  | 0.299 | 1.0      |



Dunn Post-hoc (p-değerleri)  
winners\_bh\_per\_game by wbgt\_cat

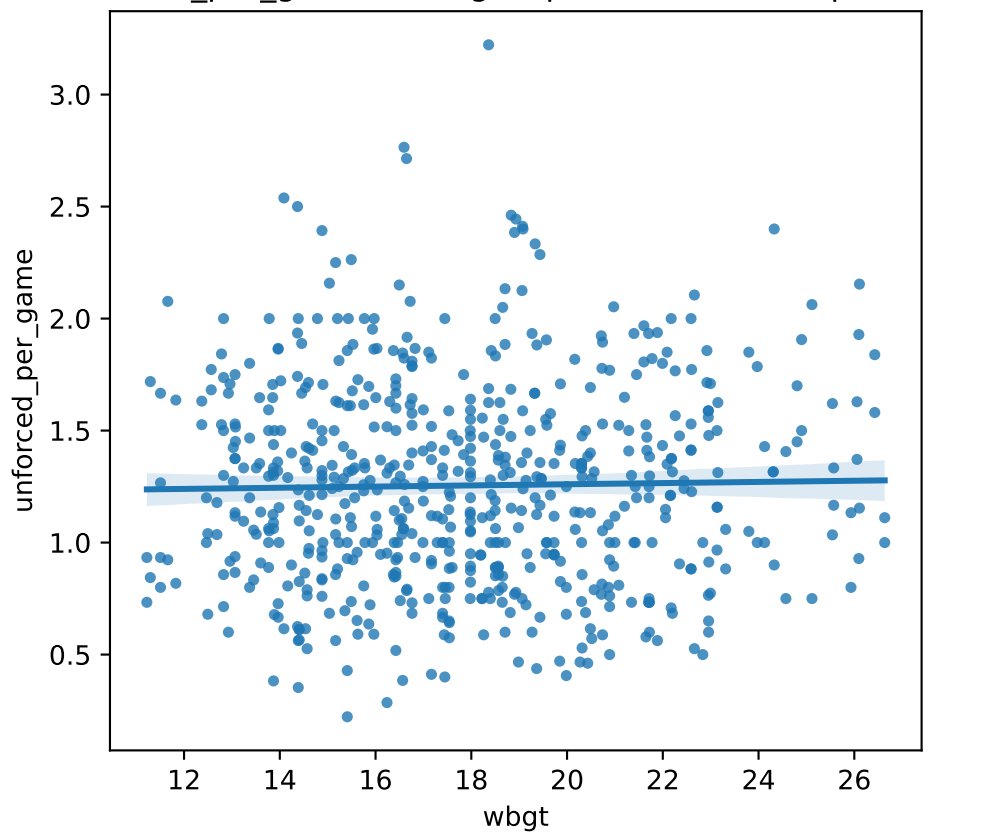
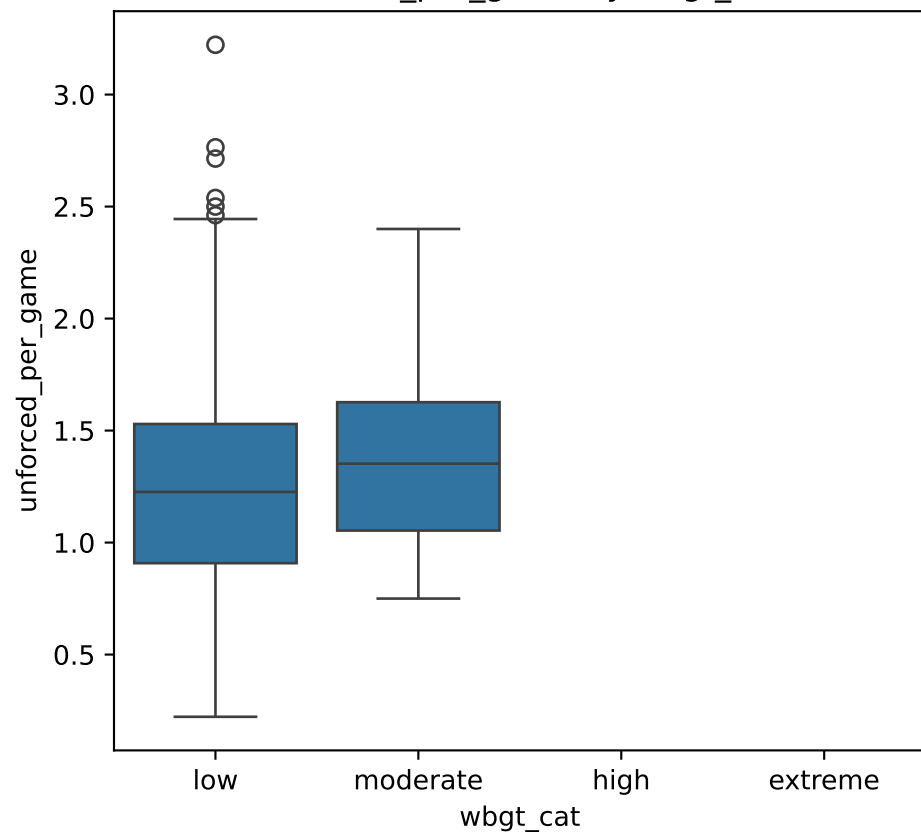
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.126    |
| moderate | 0.126 | 1.0      |



Dunn Post-hoc (p-değerleri)  
winners\_bh\_per\_game by sma\_cat

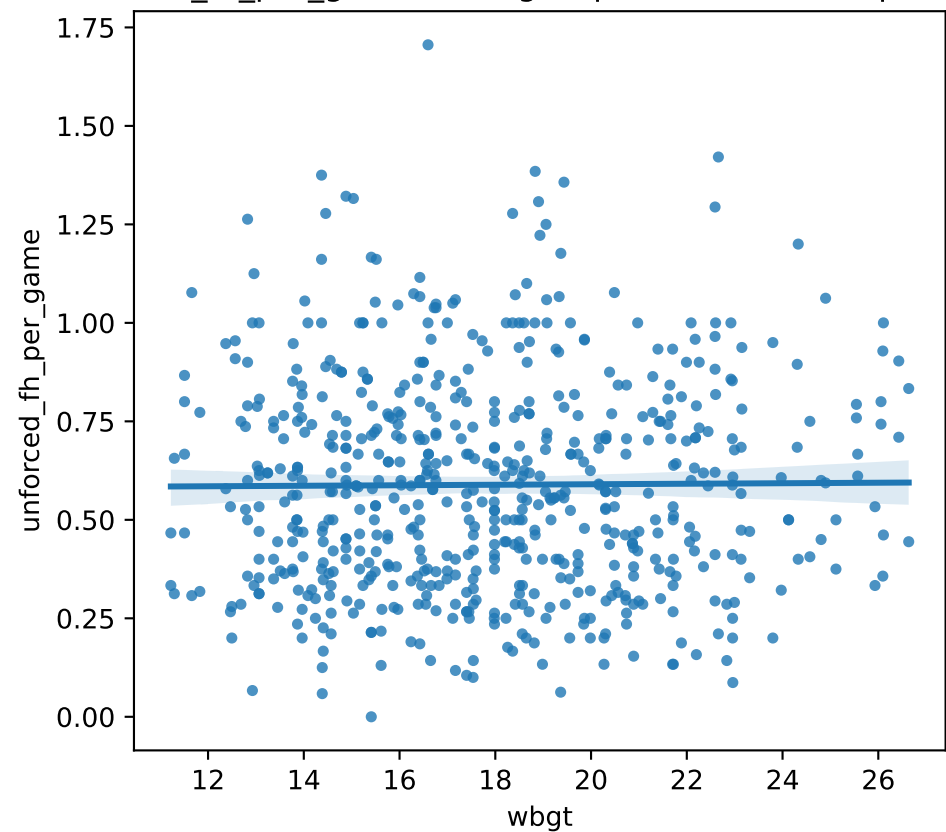
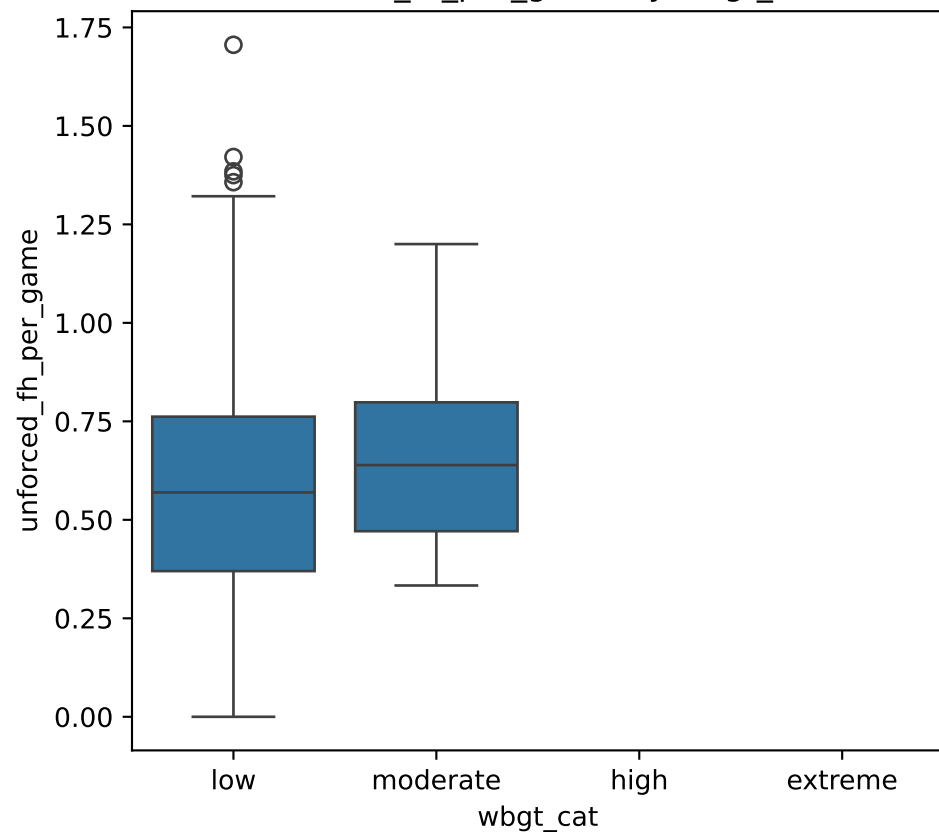
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.325 | 0.025 | 0.266    |
| high     | 0.325   | 1.0   | 1.0   | 1.0      |
| low      | 0.025   | 1.0   | 1.0   | 1.0      |
| moderate | 0.266   | 1.0   | 1.0   | 1.0      |





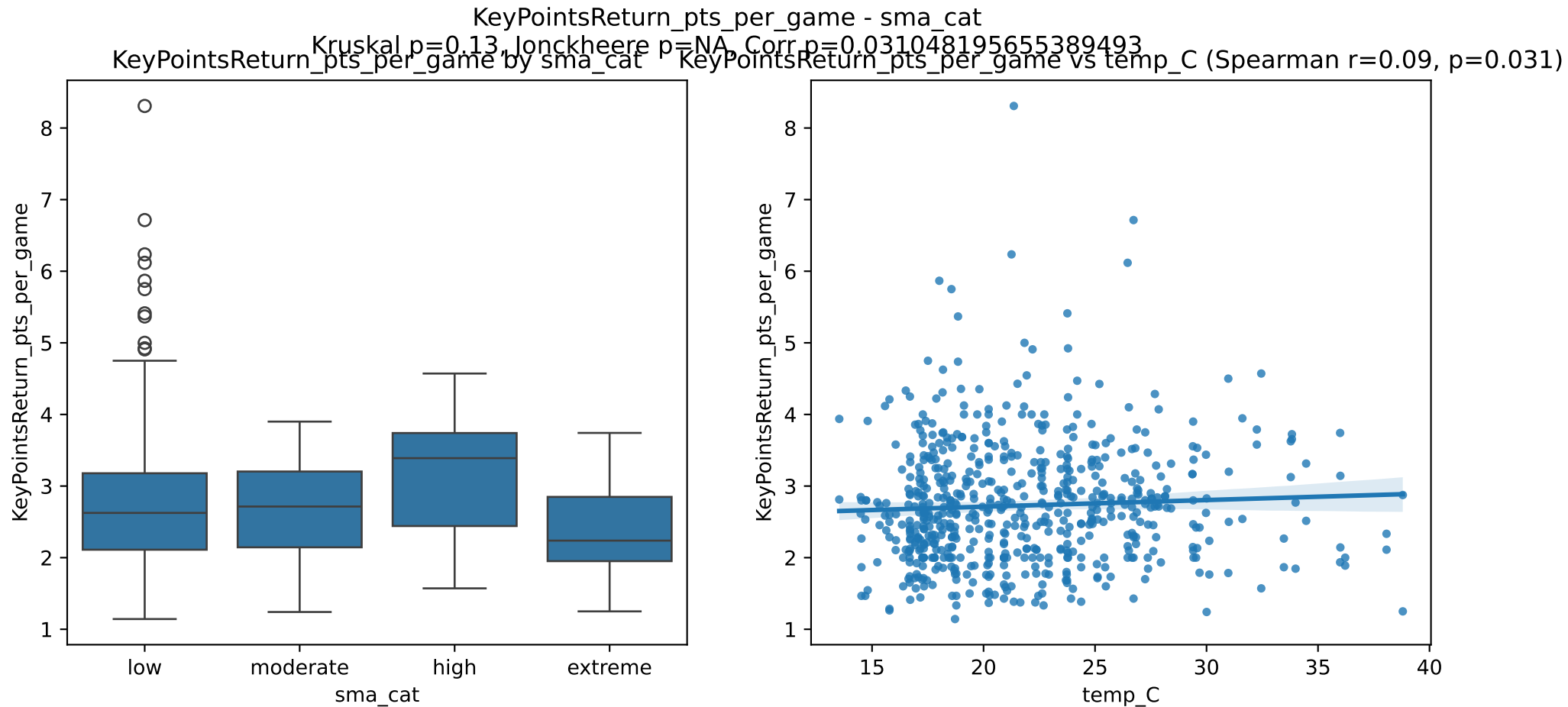
Dunn Post-hoc (p-değerleri)  
unforced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.092    |
| moderate | 0.092 | 1.0      |



Dunn Post-hoc (p-değerleri)  
unforced\_fh\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.084    |
| moderate | 0.084 | 1.0      |

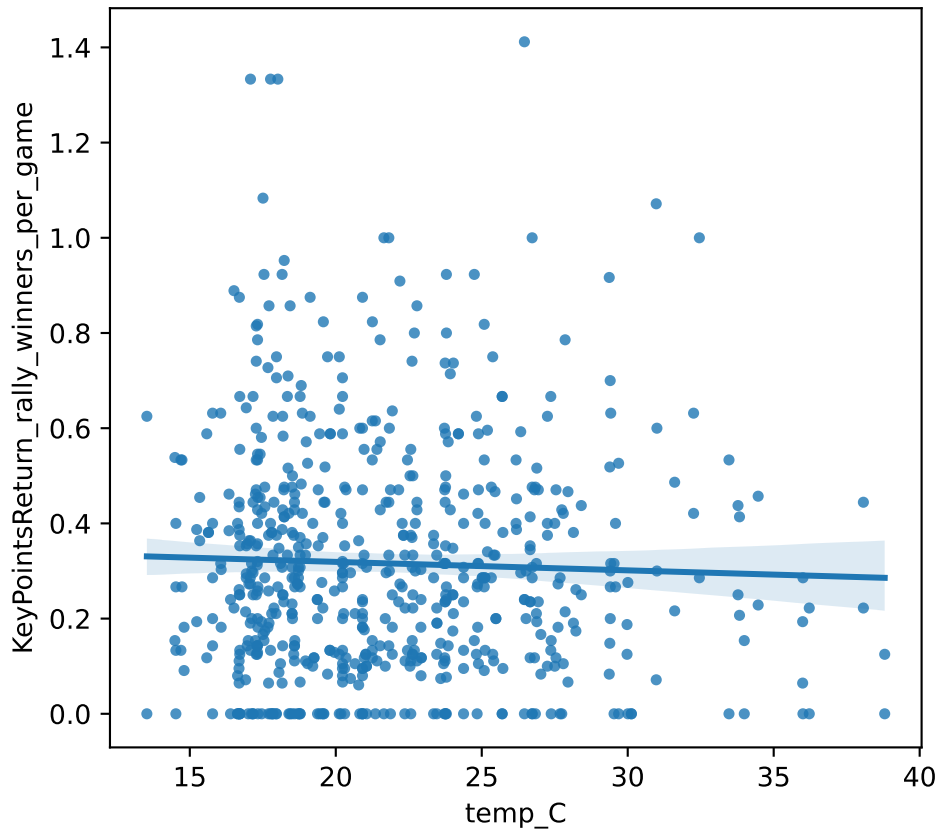


Dunn Post-hoc (p-değerleri)  
KeyPointsReturn\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.126 | 1.0   | 1.0      |
| high     | 0.126   | 1.0   | 0.313 | 0.872    |
| low      | 1.0     | 0.313 | 1.0   | 1.0      |
| moderate | 1.0     | 0.872 | 1.0   | 1.0      |

KeyPointsReturn\_rally\_winners\_per\_game by KeyPointsReturn\_rally\_winners\_per\_game v

KeyPointsReturn\_rally\_winners\_per\_game by snowPointsReturn\_rally\_winners\_per\_game vs temp\_C (Spearman  $r=-0.02$ ,  $p=0.60$ )

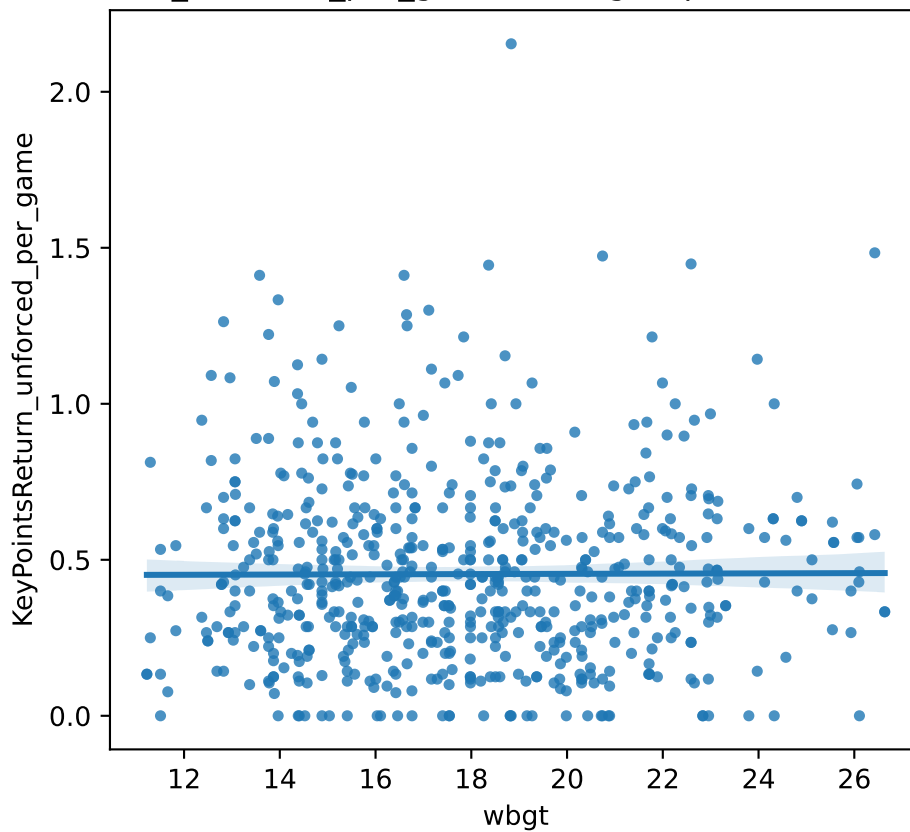
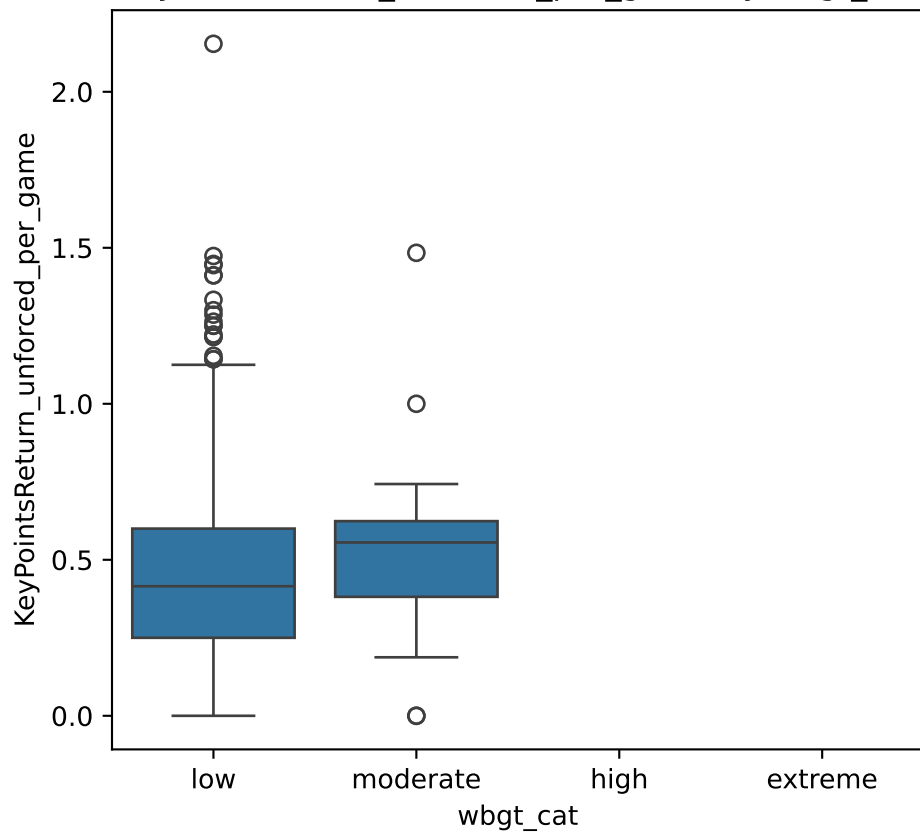


Dunn Post-hoc (p-değerleri)  
KeyPointsReturn\_rally\_winners\_per\_game by sma\_cat

|          | extreme | high  | low  | moderate |
|----------|---------|-------|------|----------|
| extreme  | 1.0     | 0.022 | 0.11 | 0.846    |
| high     | 0.022   | 1.0   | 0.57 | 0.325    |
| low      | 0.11    | 0.57  | 1.0  | 1.0      |
| moderate | 0.846   | 0.325 | 1.0  | 1.0      |



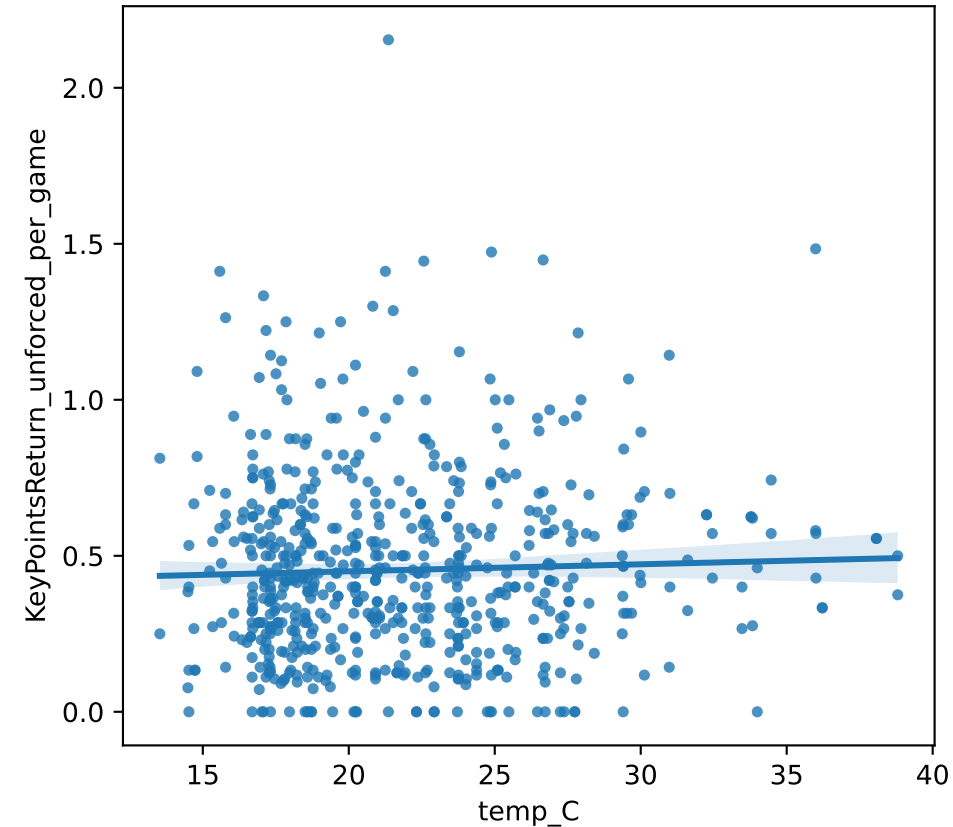
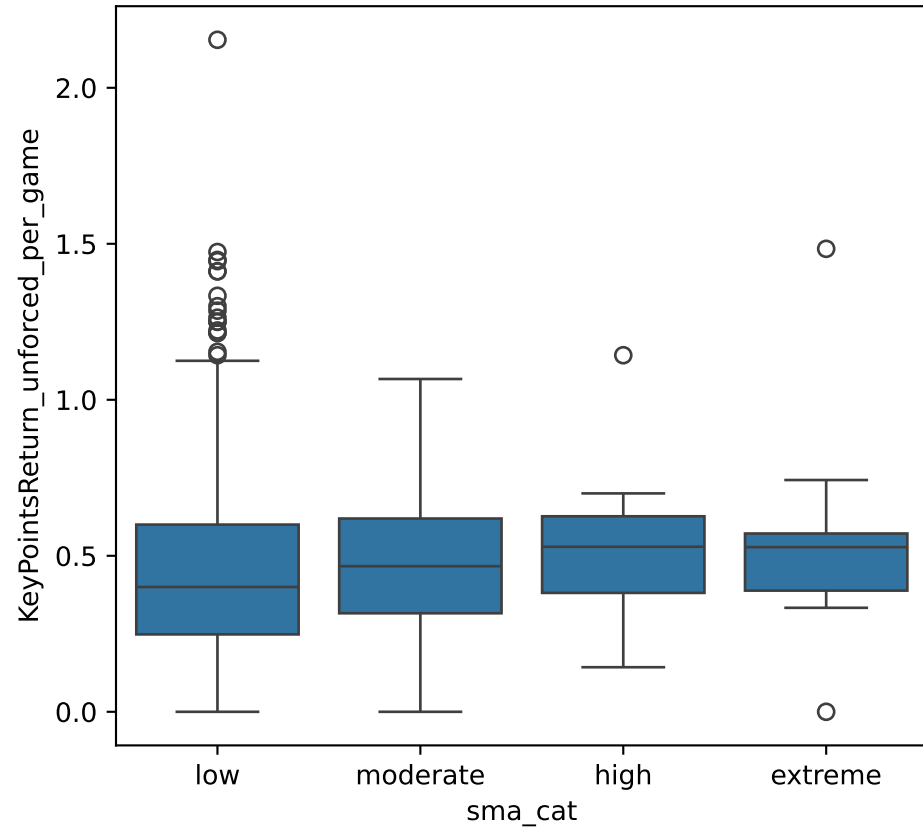
KeyPointsReturn\_unforced\_per\_game - wbgt\_cat  
Kruskal p=0.0984, Jonckheere p=NA, Corr p=0.9945261543132584  
KeyPointsReturn\_unforced\_per\_game by wbgt\_cat  
KeyPointsReturn\_unforced\_per\_game vs wbgt (Spearman r=0.00, p=0.995)



Dunn Post-hoc (p-değerleri)  
KeyPointsReturn\_unforced\_per\_game by wbgt\_cat

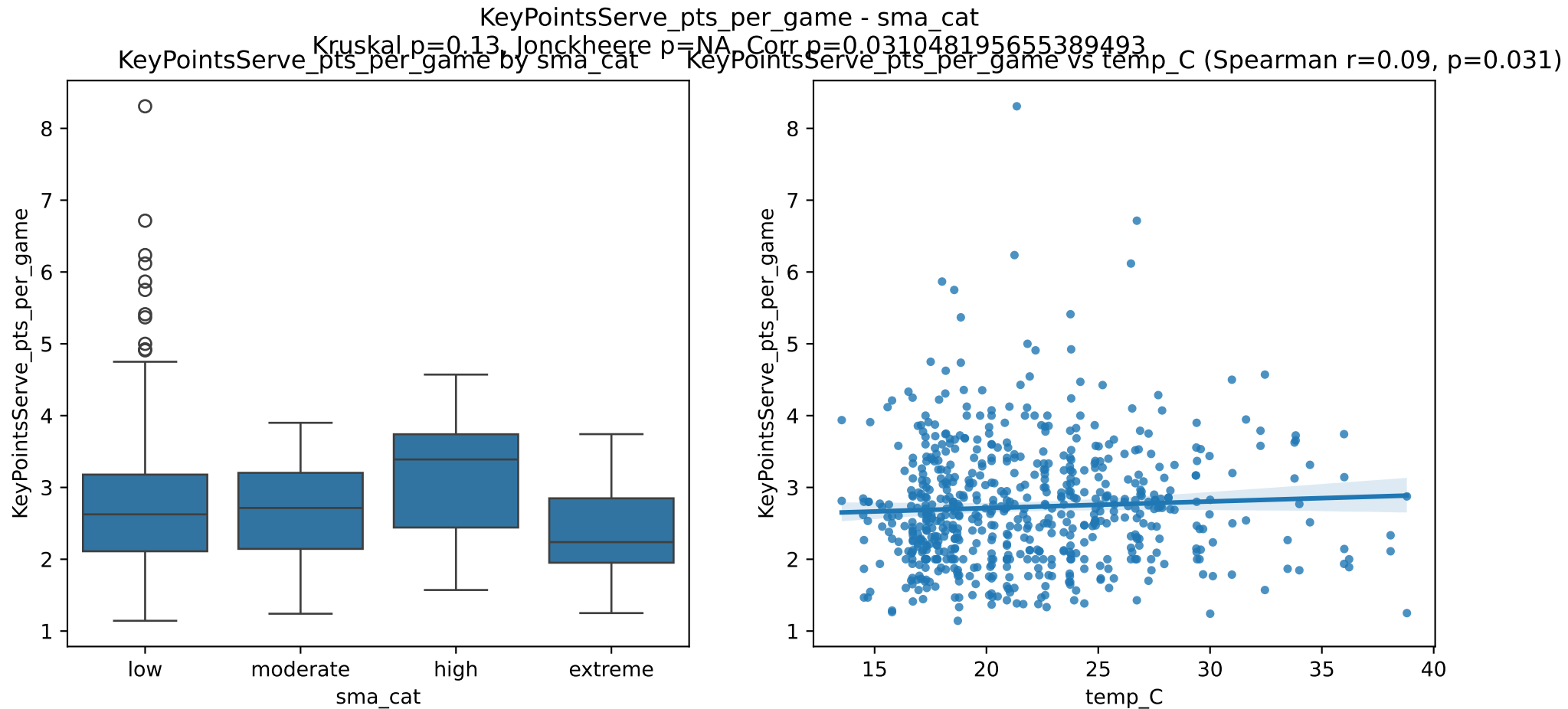
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.098    |
| moderate | 0.098 | 1.0      |

KeyPointsReturn\_unforced\_per\_game - sma\_cat  
Kruskal p=0.149, Jonckheere p=NA, Corr p=0.4530947460773682  
KeyPointsReturn\_unforced\_per\_game by sma\_cat  
KeyPointsReturn\_unforced\_per\_game vs temp\_C (Spearman r=0.03, p=0.453)



Dunn Post-hoc (p-değerleri)  
KeyPointsReturn\_unforced\_per\_game by sma\_cat

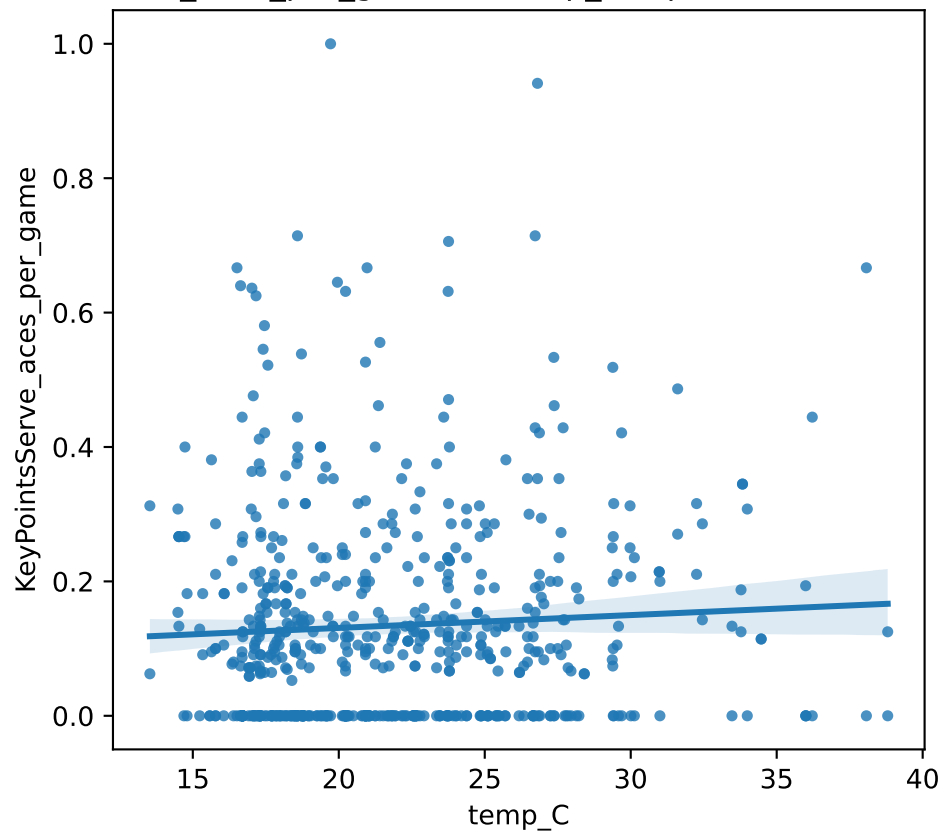
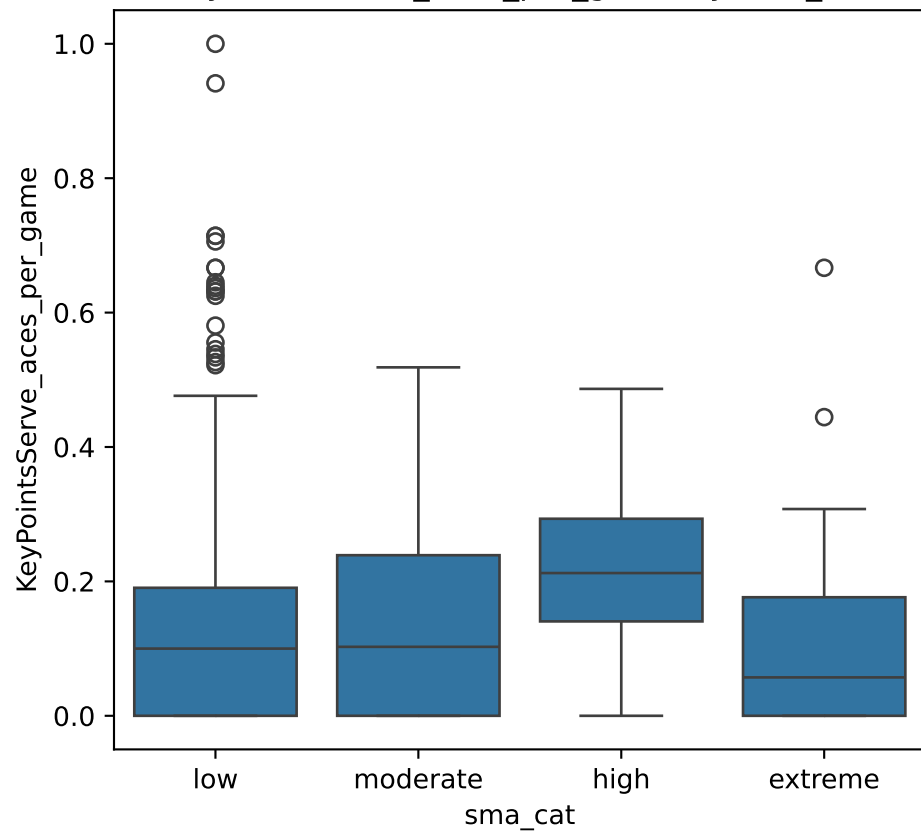
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.971 | 1.0      |
| low      | 1.0     | 0.971 | 1.0   | 0.913    |
| moderate | 1.0     | 1.0   | 0.913 | 1.0      |



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.126 | 1.0   | 1.0      |
| high     | 0.126   | 1.0   | 0.313 | 0.872    |
| low      | 1.0     | 0.313 | 1.0   | 1.0      |
| moderate | 1.0     | 0.872 | 1.0   | 1.0      |

KeyPointsServe\_aces\_per\_game - sma\_cat  
Kruskal p=0.0173, Jonckheere p=NA, Corr p=0.15250504960159675  
KeyPointsServe\_aces\_per\_game by sma\_cat    KeyPointsServe\_aces\_per\_game vs temp\_C (Spearman r=0.06, p=0.153)

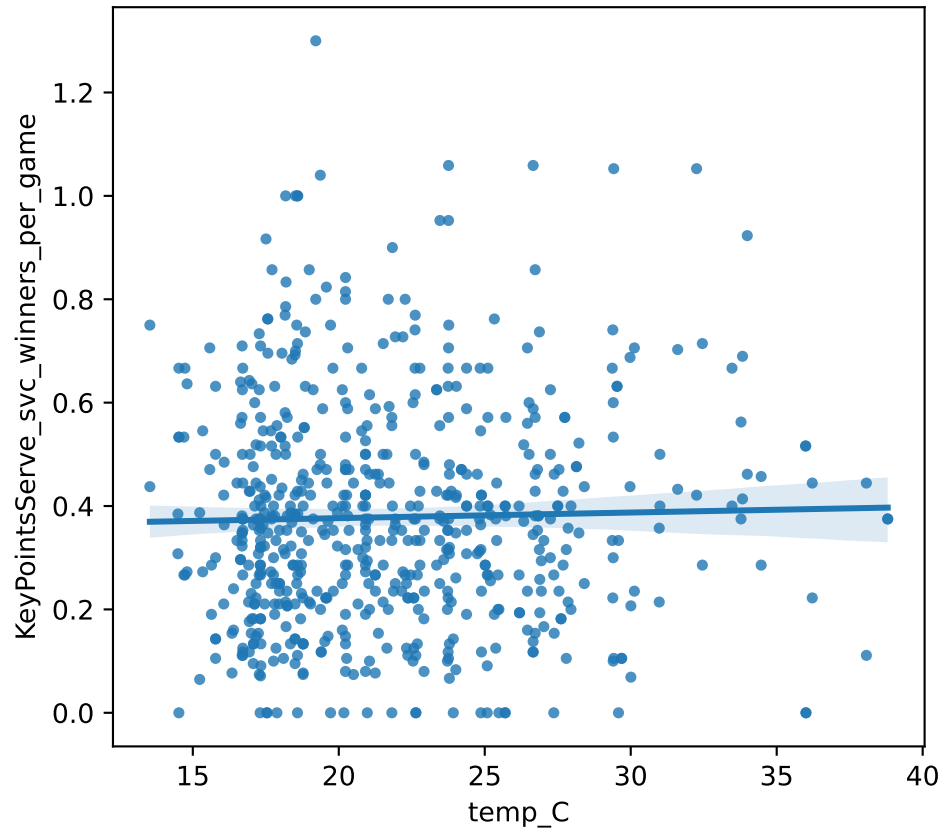
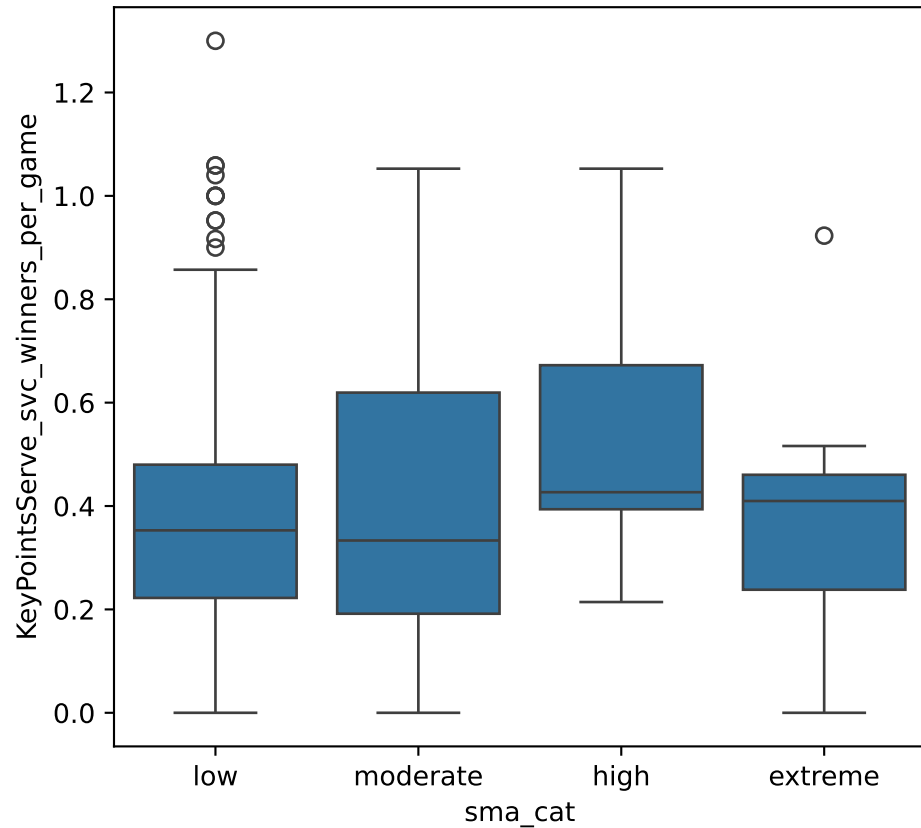


Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.093 | 1.0   | 1.0      |
| high     | 0.093   | 1.0   | 0.013 | 0.245    |
| low      | 1.0     | 0.013 | 1.0   | 1.0      |
| moderate | 1.0     | 0.245 | 1.0   | 1.0      |



KeyPointsServe\_svc\_winners\_per\_game - sma\_cat  
Kruskal p=0.0819, Jonckheere p=NA, Corr p=0.5000874639782178  
KeyPointsServe\_svc\_winners\_per\_game by sma\_cat  
KeyPointsServe\_svc\_winners\_per\_game vs temp\_C (Spearman r=0.03, p=0.500)

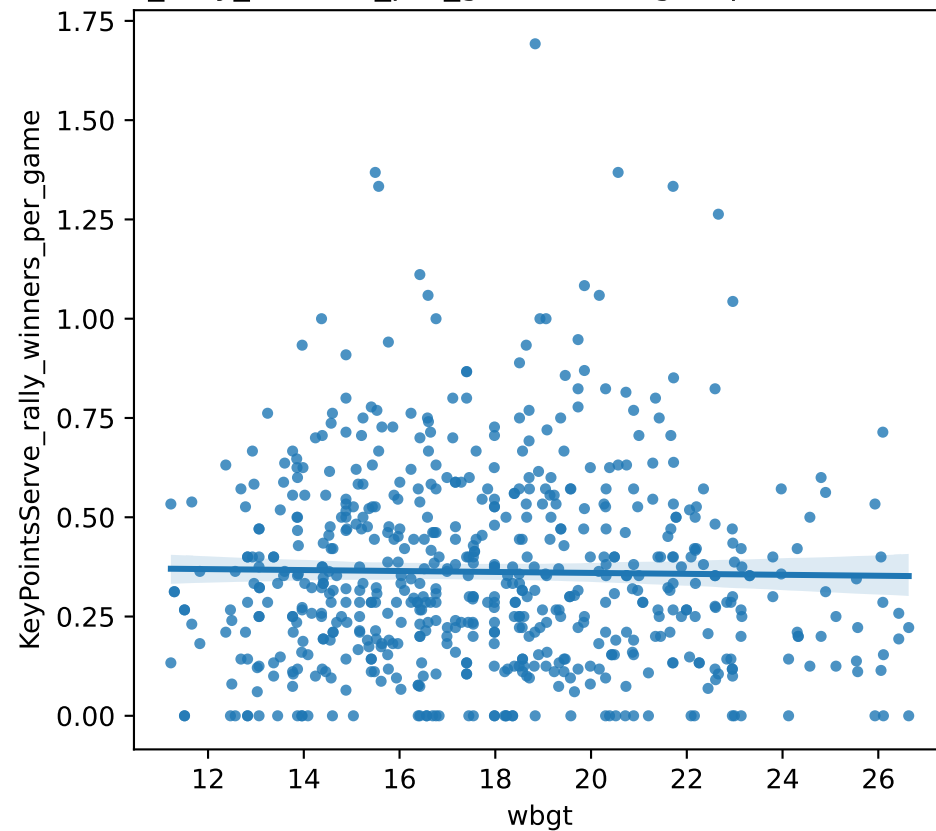
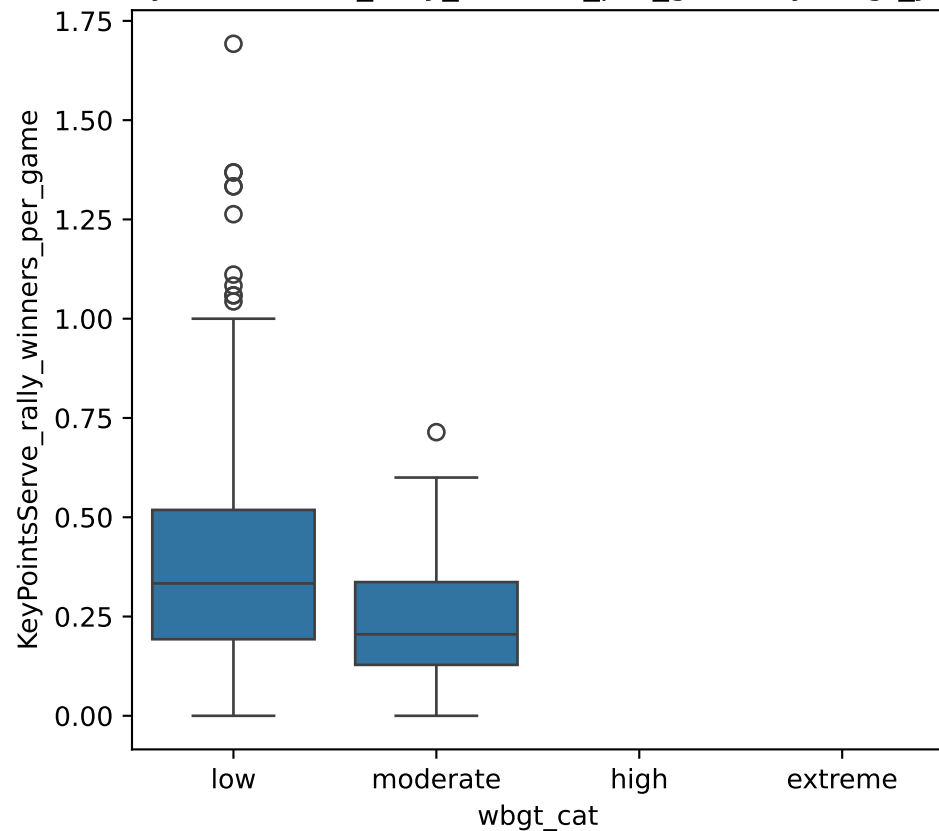


Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_svc\_winners\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.548 | 1.0   | 1.0      |
| high     | 0.548   | 1.0   | 0.058 | 0.212    |
| low      | 1.0     | 0.058 | 1.0   | 1.0      |
| moderate | 1.0     | 0.212 | 1.0   | 1.0      |

KeyPointsServe\_rally\_winners\_per\_game - wbgt\_cat  
Kruskal p=0.00795, Jonckheere p=NA, Corr p=0.6557456247429232

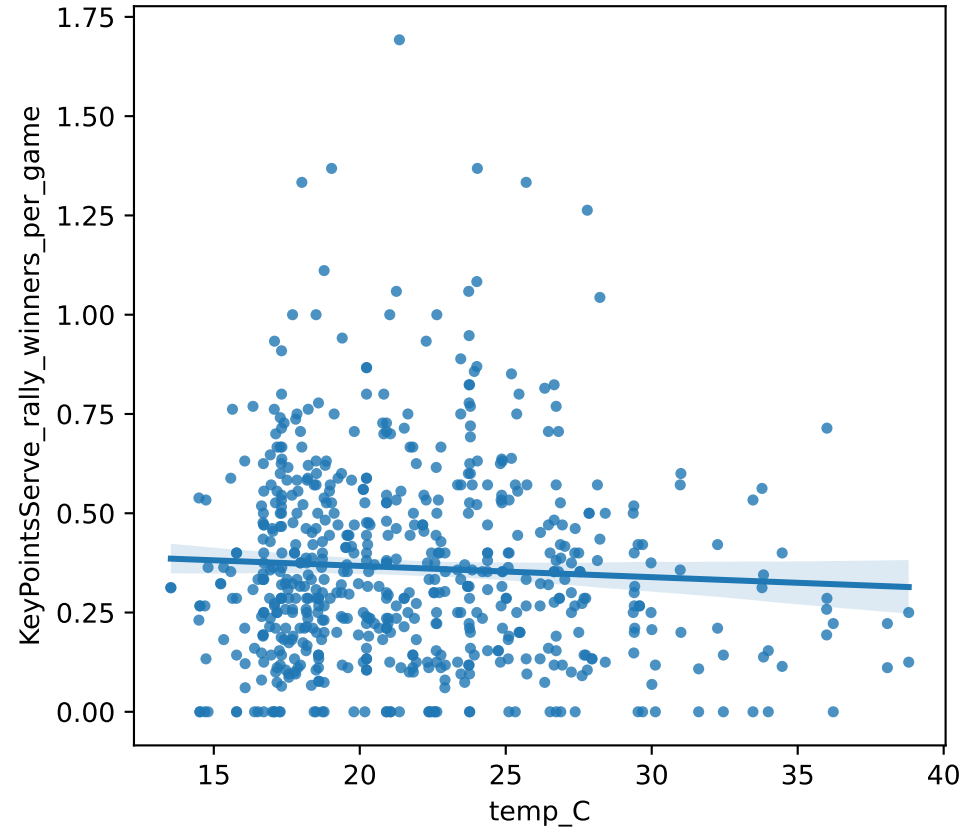
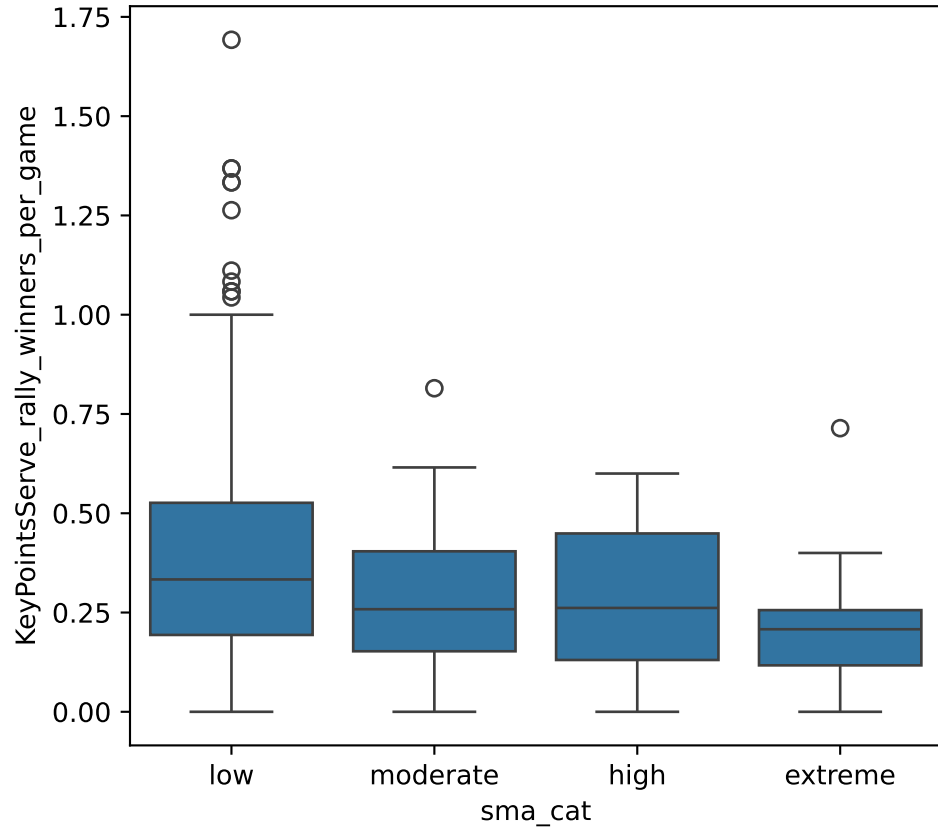
KeyPointsServe\_rally\_winners\_per\_game by wbgt\_cat  
KeyPointsServe\_rally\_winners\_per\_game vs wbgt (Spearman r=-0.02, p=0.656)



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_rally\_winners\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.008    |
| moderate | 0.008 | 1.0      |

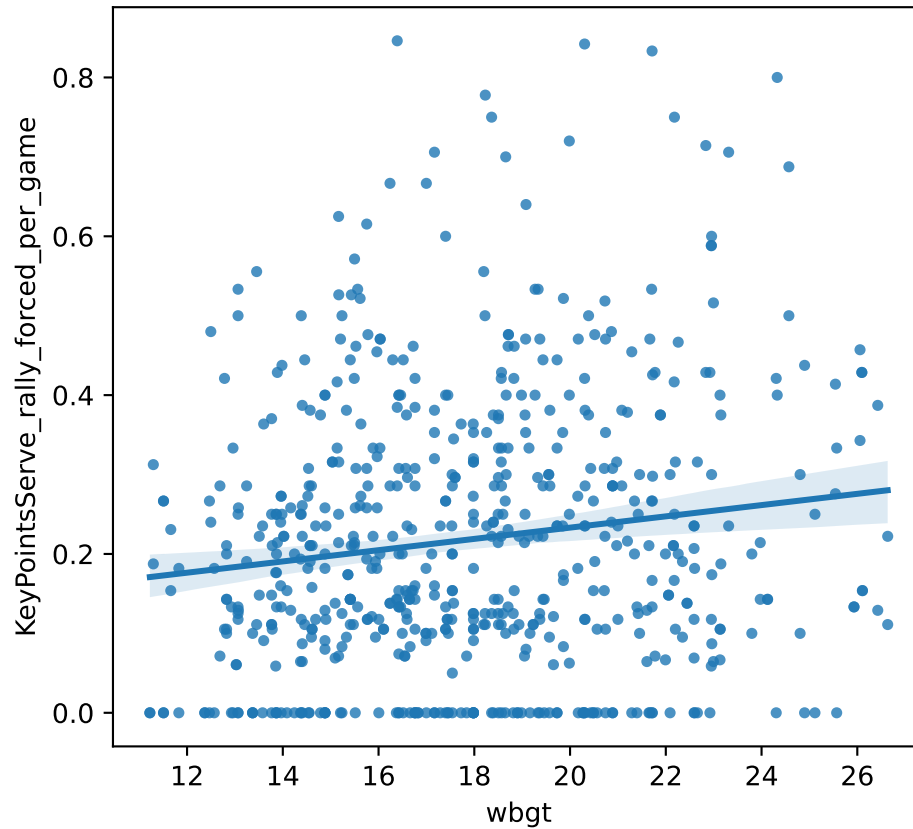
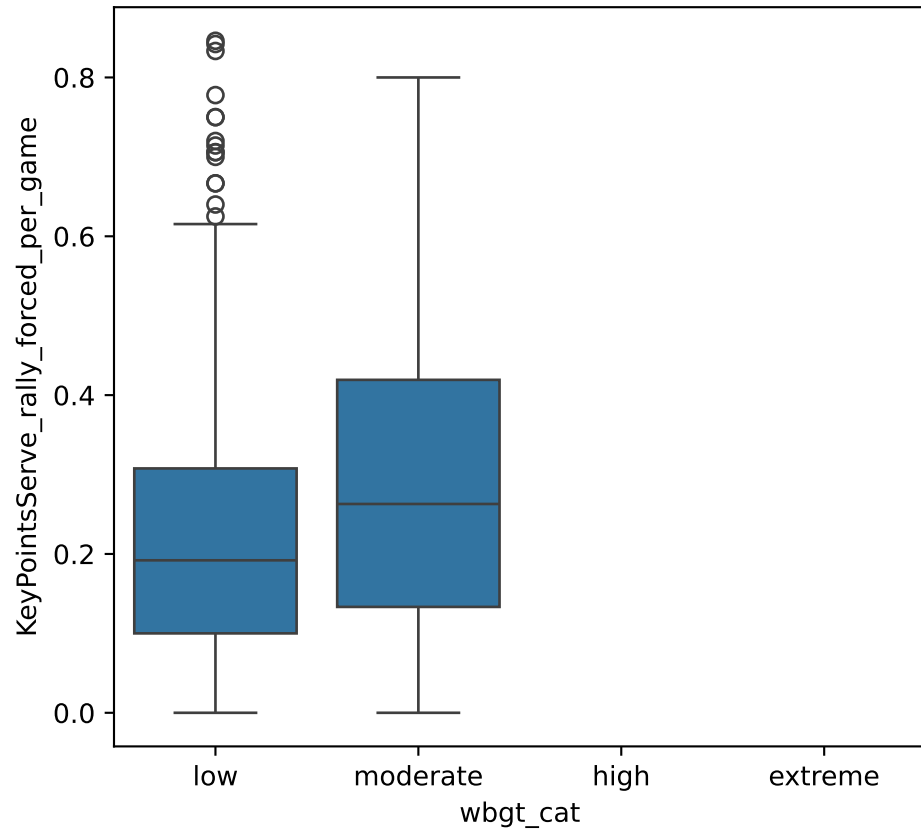
KeyPointsServe\_rally\_winners\_per\_game - sma\_cat  
Kruskal p=0.00786, Jonckheere p=NA, Corr p=0.5077882572681149  
KeyPointsServe\_rally\_winners\_per\_game by sma\_cat  
KeyPointsServe\_rally\_winners\_per\_game vs temp\_C (Spearman r=-0.03, p=0.508)



Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_rally\_winners\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.055 | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 0.055   | 1.0  | 1.0   | 0.259    |
| moderate | 1.0     | 1.0  | 0.259 | 1.0      |

KeyPointsServe\_rally\_forced\_per\_game - wbggt\_cat  
Kruskal p=0.0827, Jonckheere p=NA, Corr p=0.0022459944191582583  
KeyPointsServe\_rally\_forced\_per\_game by wbggt\_cat  
KeyPointsServe\_rally\_forced\_per\_game vs wbggt (Spearman r=0.12, p=0.002)

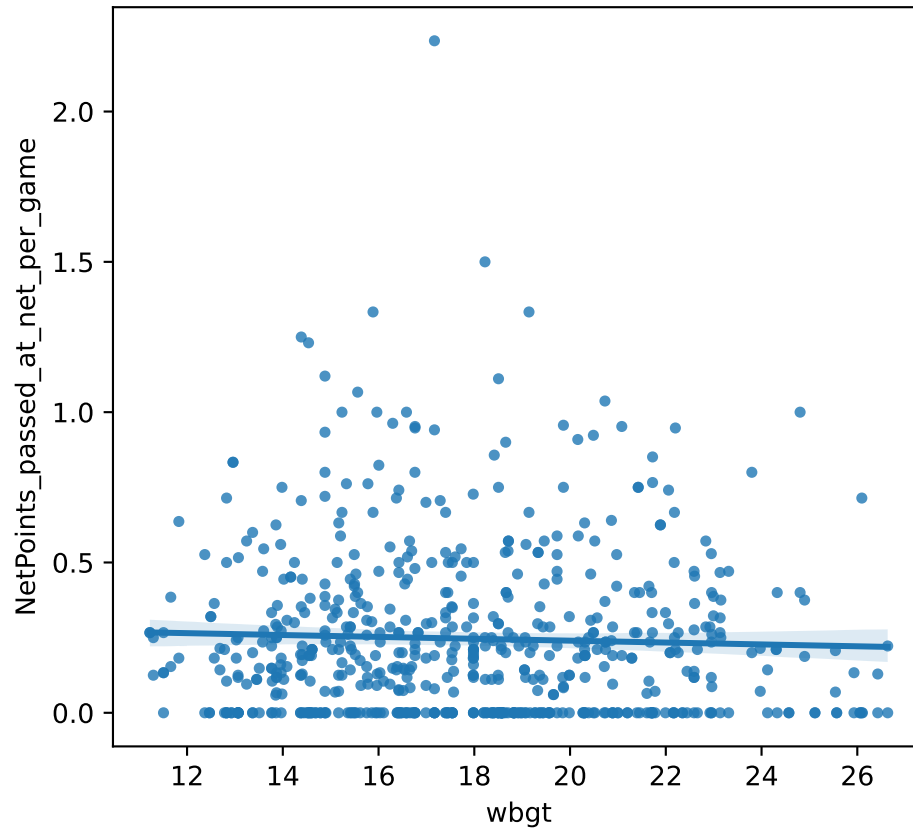
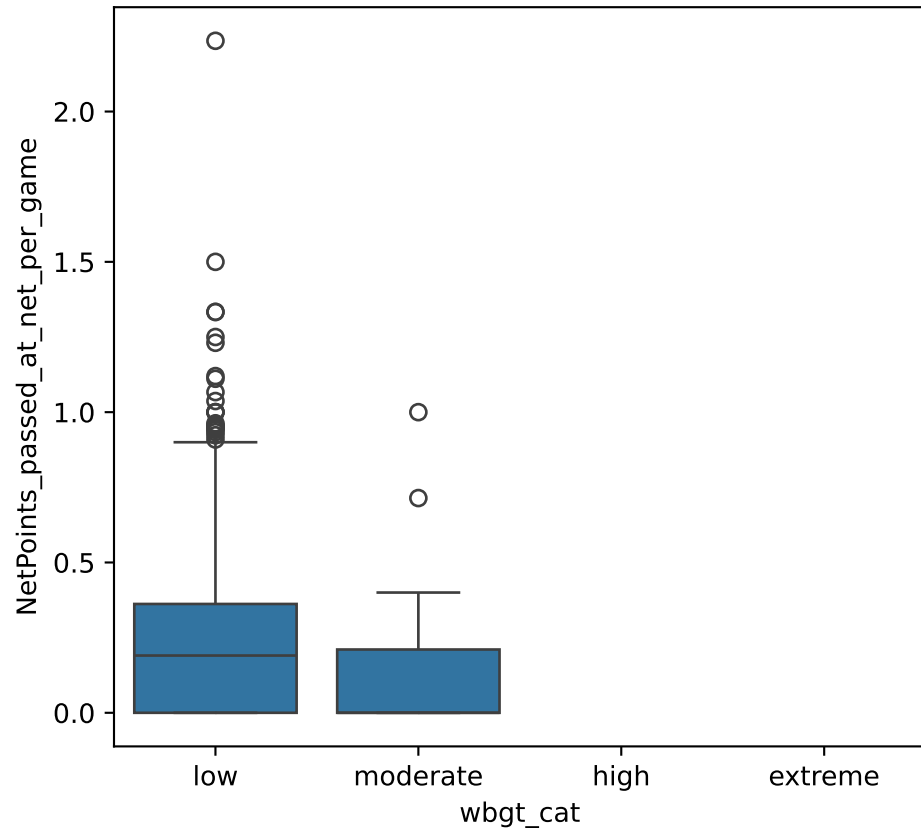


Dunn Post-hoc (p-değerleri)  
KeyPointsServe\_rally\_forced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.083    |
| moderate | 0.083 | 1.0      |



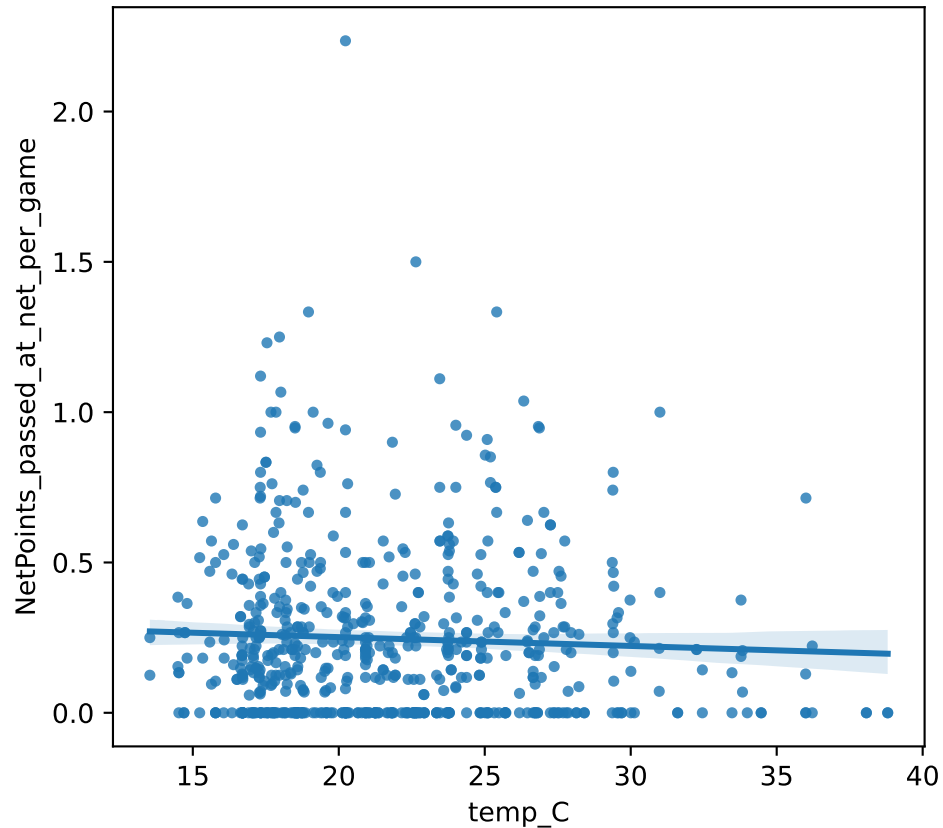
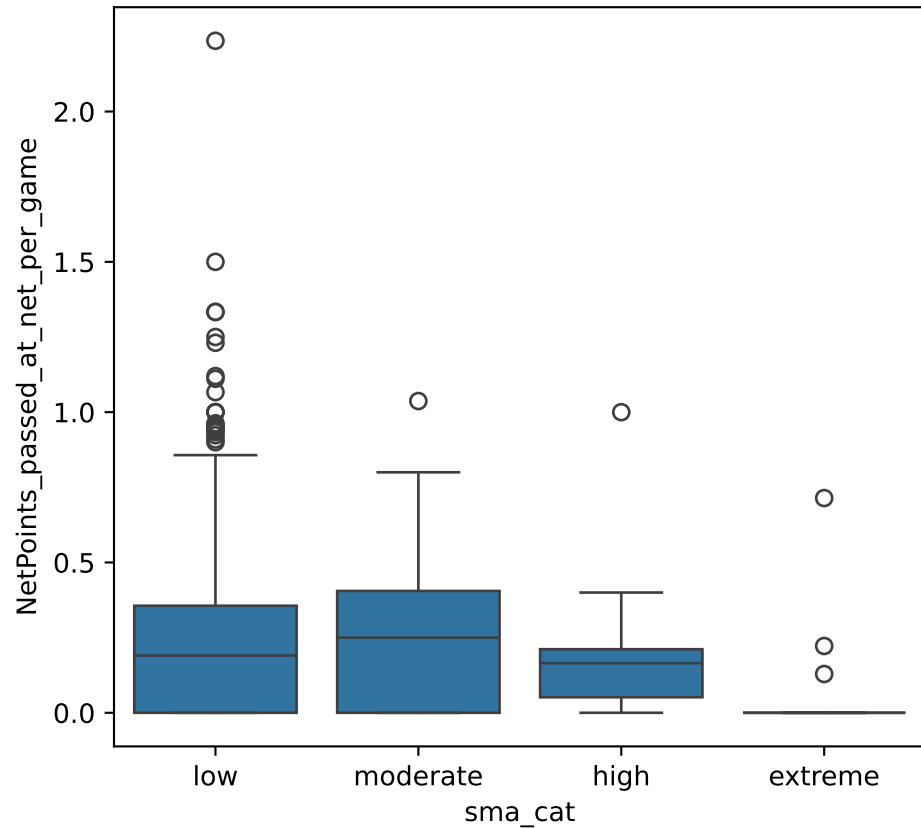
NetPoints\_passed\_at\_net\_per\_game - wbgmt\_cat  
 Kruskal p=0.0141, Jonckheere p=NA, Corr p=0.29716317662578945  
 NetPoints\_passed\_at\_net\_per\_game by wbgmt\_cat NetPoints\_passed\_at\_net\_per\_game vs wbgmt (Spearman r=-0.04, p=0.297)



Dunn Post-hoc (p-değerleri)  
NetPoints\_passed\_at\_net\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.014    |
| moderate | 0.014 | 1.0      |

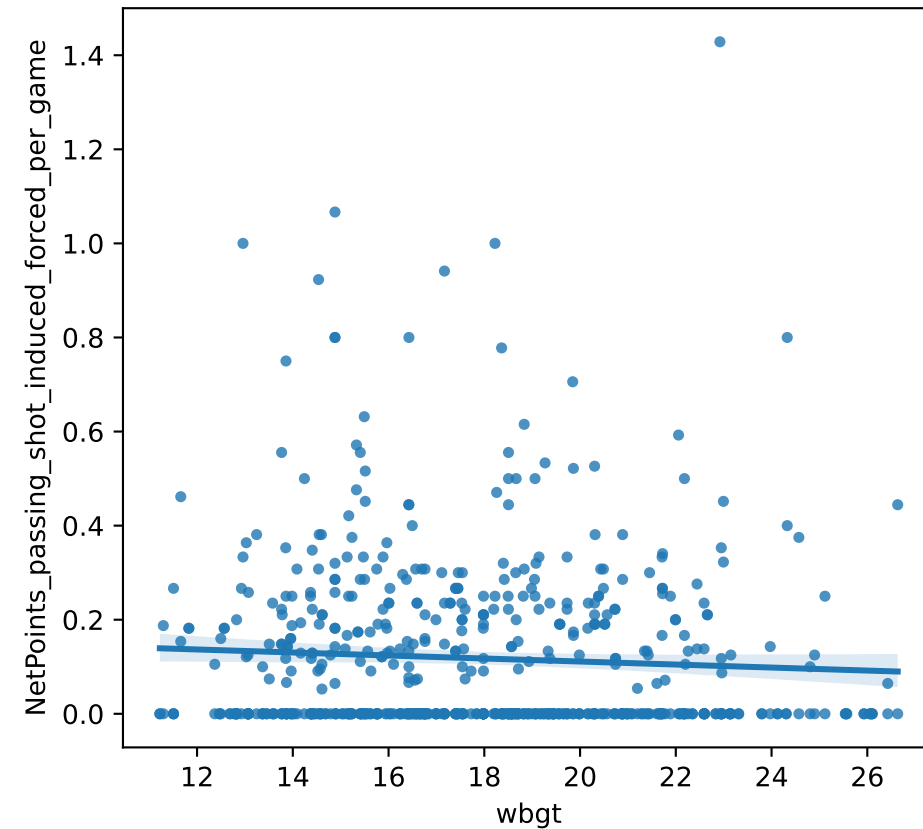
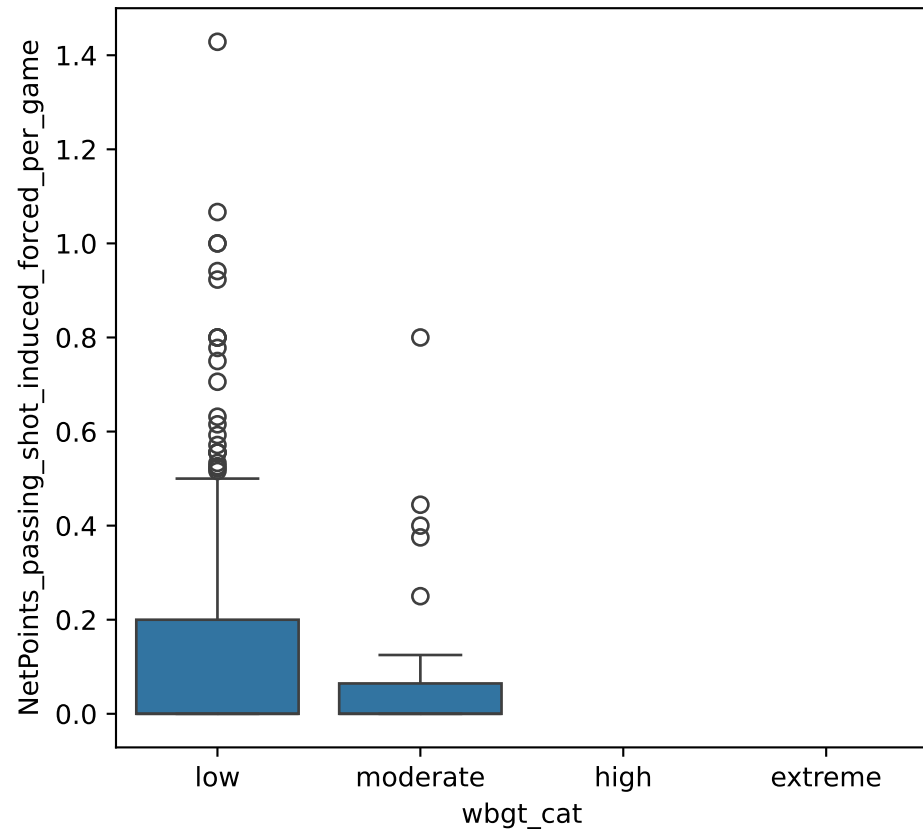
NetPoints\_passed\_at\_net\_per\_game - sma\_cat  
Kruskal p=0.021, Jonckheere p=NA, Corr p=0.32048055673064546  
NetPoints\_passed\_at\_net\_per\_game by sma\_cat  
NetPoints\_passed\_at\_net\_per\_game vs temp\_C (Spearman r=-0.04, p=0.320)



Dunn Post-hoc (p-değerleri)  
NetPoints\_passed\_at\_net\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.417 | 0.016 | 0.027    |
| high     | 0.417   | 1.0   | 1.0   | 1.0      |
| low      | 0.016   | 1.0   | 1.0   | 1.0      |
| moderate | 0.027   | 1.0   | 1.0   | 1.0      |

NetPoints\_passing\_shot\_induced\_forced\_per\_game - wbgt\_cat  
Kruskal p=0.102, Jonckheere p=NA, Corr p=0.05489868276500115  
NetPoints\_passing\_shot\_induced\_forced\_per\_game by wbgt\_cat  
NetPoints\_passing\_shot\_induced\_forced\_per\_game vs wbgt (Spearman r=-0.08, p=0.05489868276500115)

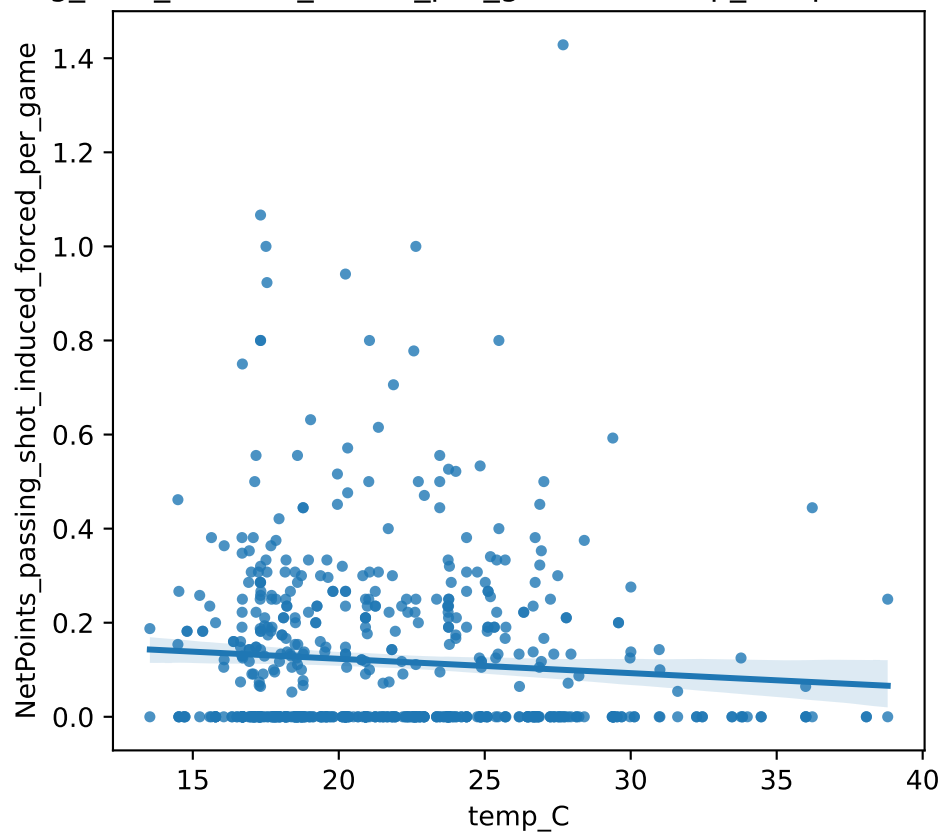
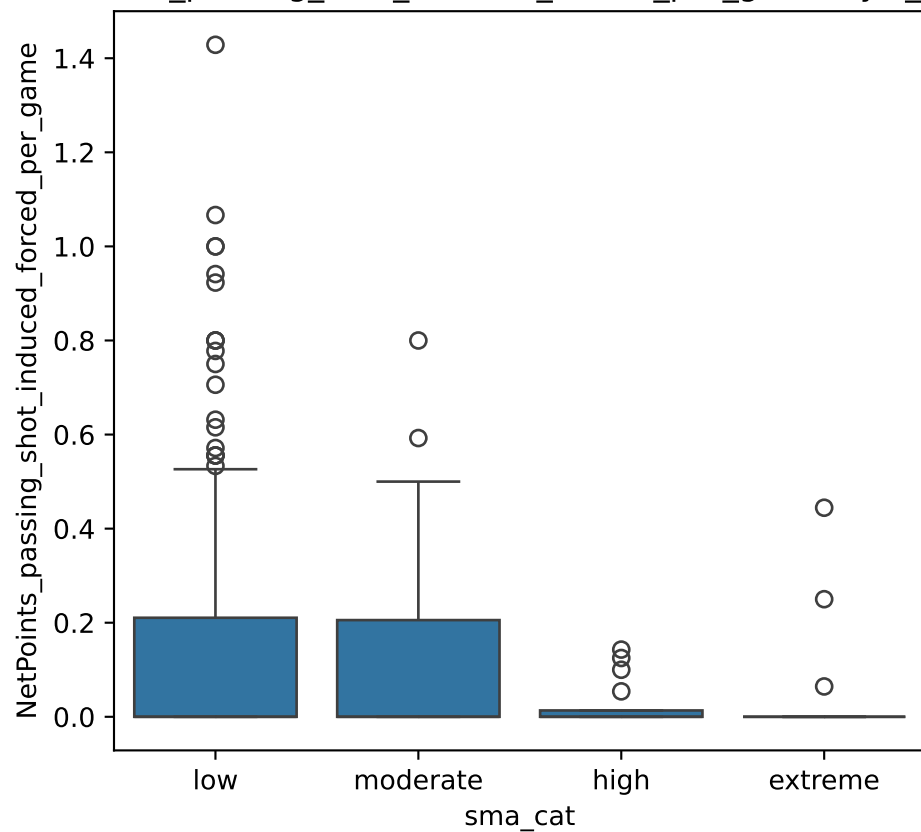


Dunn Post-hoc (p-değerleri)  
NetPoints\_passing\_shot\_induced\_forced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.102    |
| moderate | 0.102 | 1.0      |

Kruskal, p=0.0746, Jonckheere p=NA, Corr p=0.031003652068320987

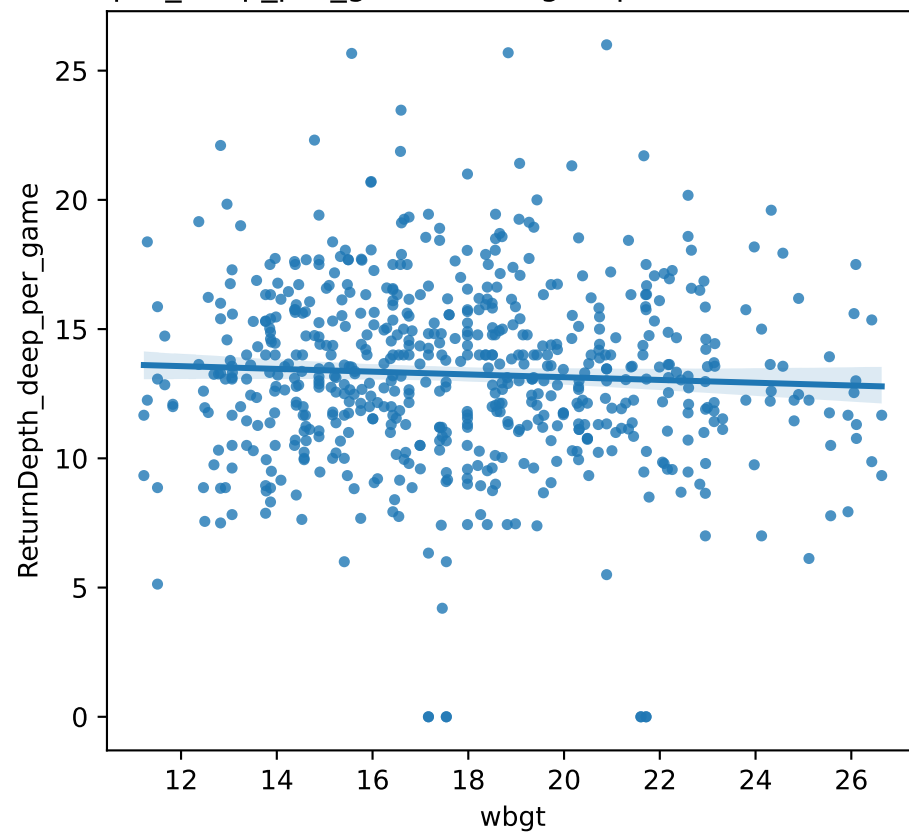
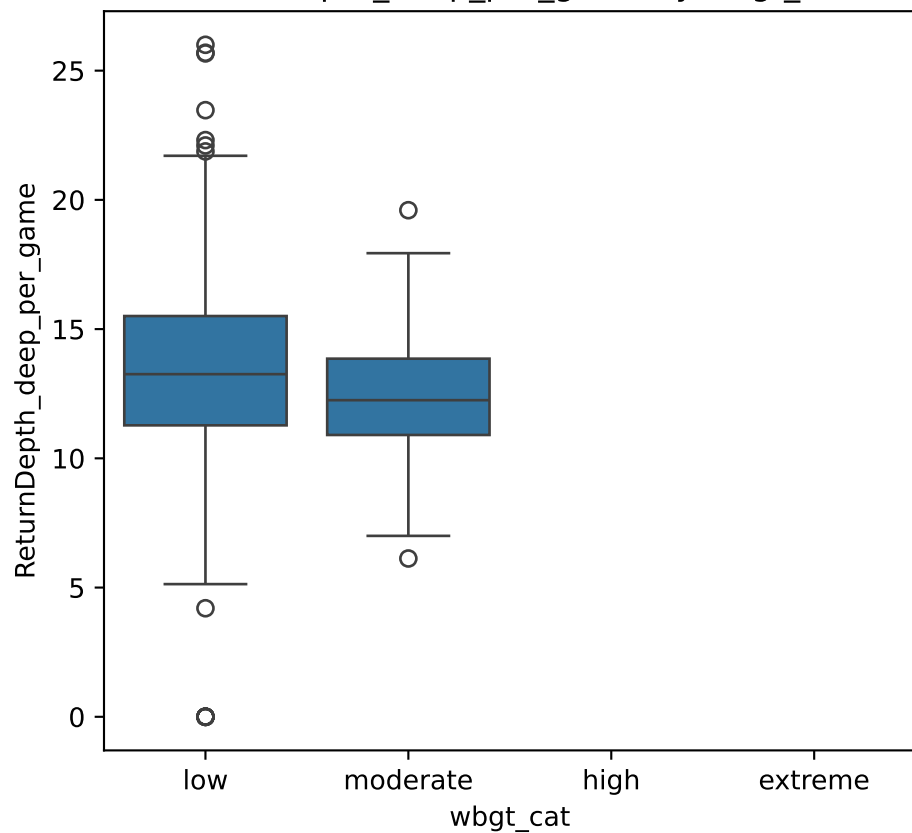
NetPoints passing shot induced forced per game vs temp C (Spearman  $r=-0.09$ ,  $p=$



Dunn Post-hoc (p-değerleri)  
NetPoints\_passing\_shot\_induced\_forced\_per\_game by sma\_cat

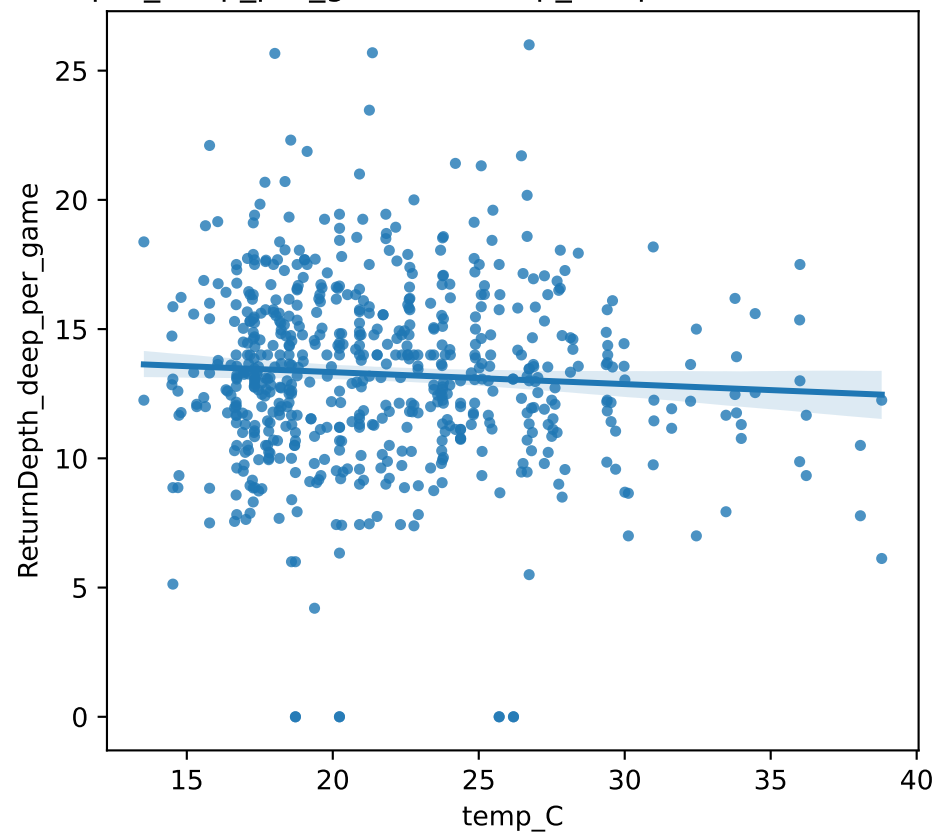
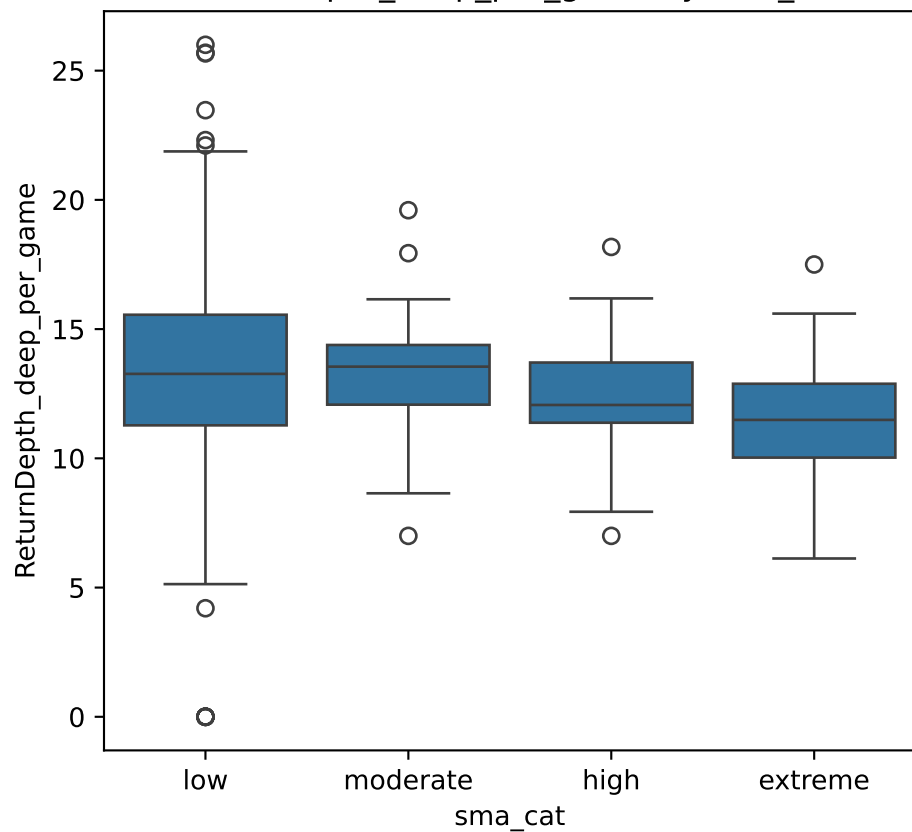
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.747 | 1.0      |
| high     | 1.0     | 1.0   | 0.179 | 0.525    |
| low      | 0.747   | 0.179 | 1.0   | 1.0      |
| moderate | 1.0     | 0.525 | 1.0   | 1.0      |





Dunn Post-hoc (p-değerleri)  
ReturnDepth\_deep\_per\_game by wbgt\_cat

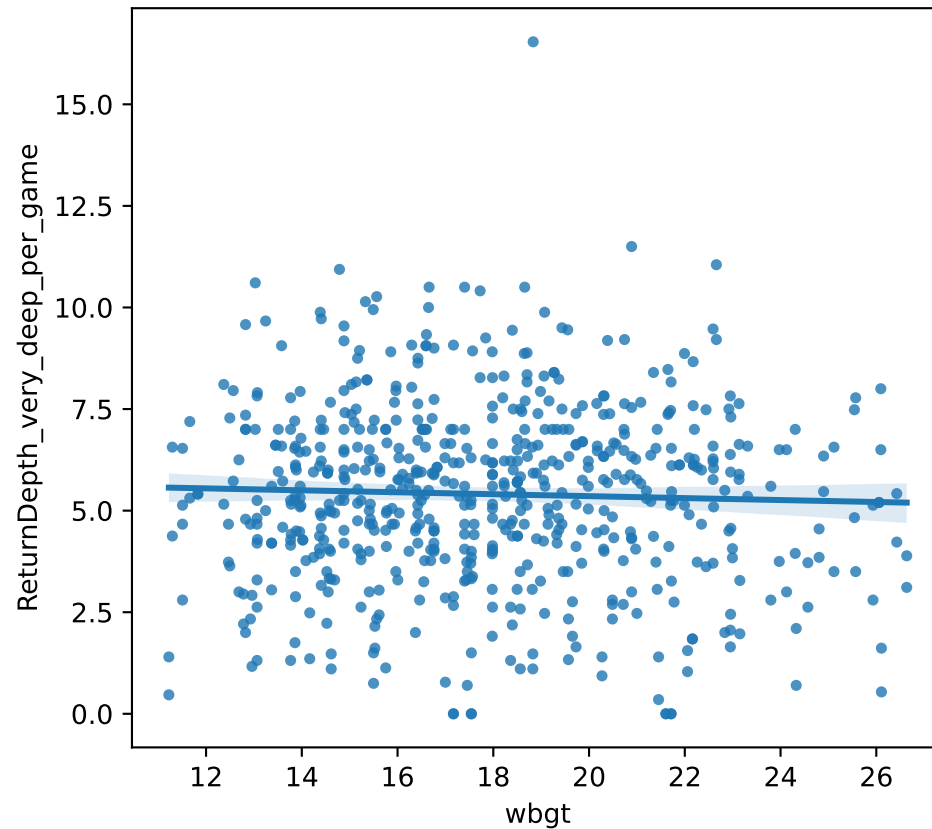
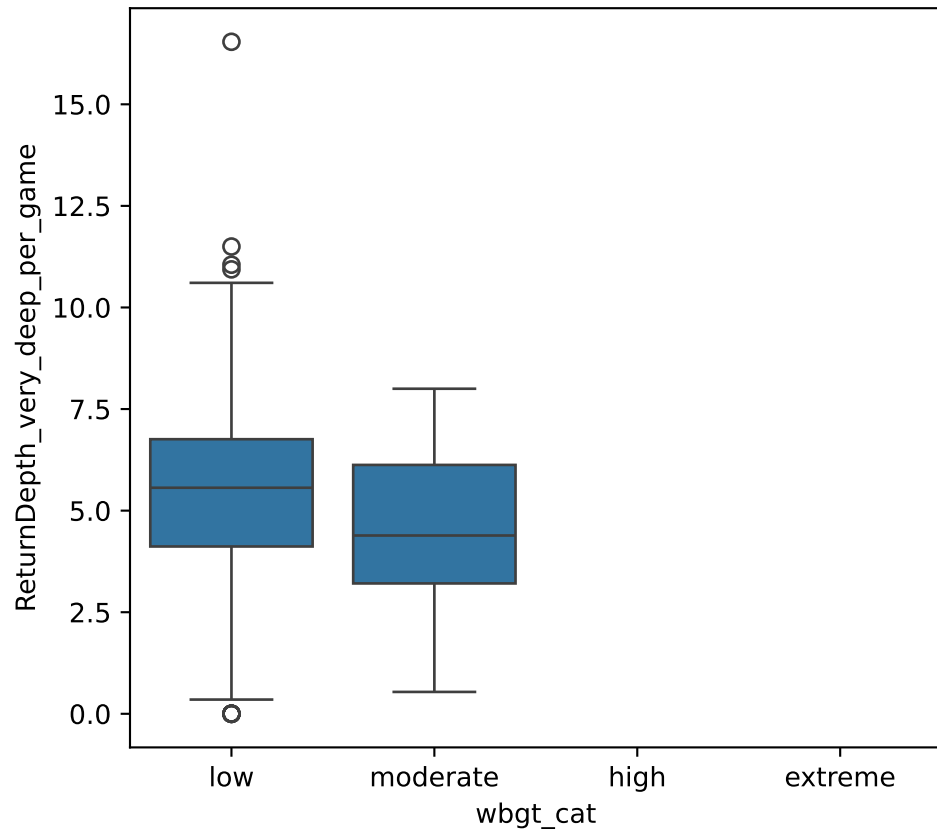
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.116    |
| moderate | 0.116 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_deep\_per\_game by sma\_cat

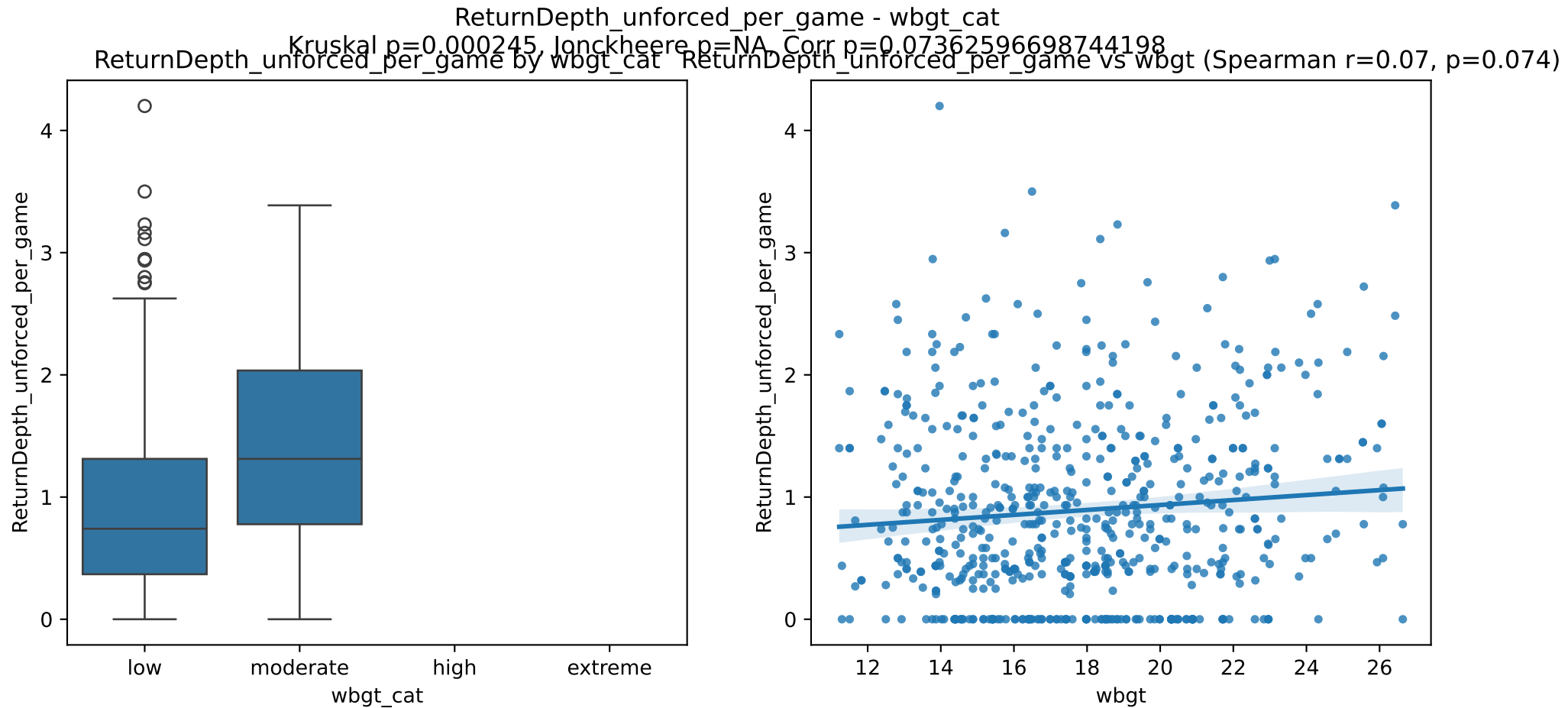
|          | extreme | high | low  | moderate |
|----------|---------|------|------|----------|
| extreme  | 1.0     | 1.0  | 0.28 | 0.748    |
| high     | 1.0     | 1.0  | 0.91 | 1.0      |
| low      | 0.28    | 0.91 | 1.0  | 1.0      |
| moderate | 0.748   | 1.0  | 1.0  | 1.0      |

ReturnDepth\_very\_deep\_per\_game - wbgc\_cat  
Kruskal p=0.0208, Jonckheere p=NA, Corr p=0.8333417807687326  
ReturnDepth\_very\_deep\_per\_game by wbgc\_cat  
ReturnDepth\_very\_deep\_per\_game vs wbgc (Spearman r=-0.01, p=0.833)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_very\_deep\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.021    |
| moderate | 0.021 | 1.0      |

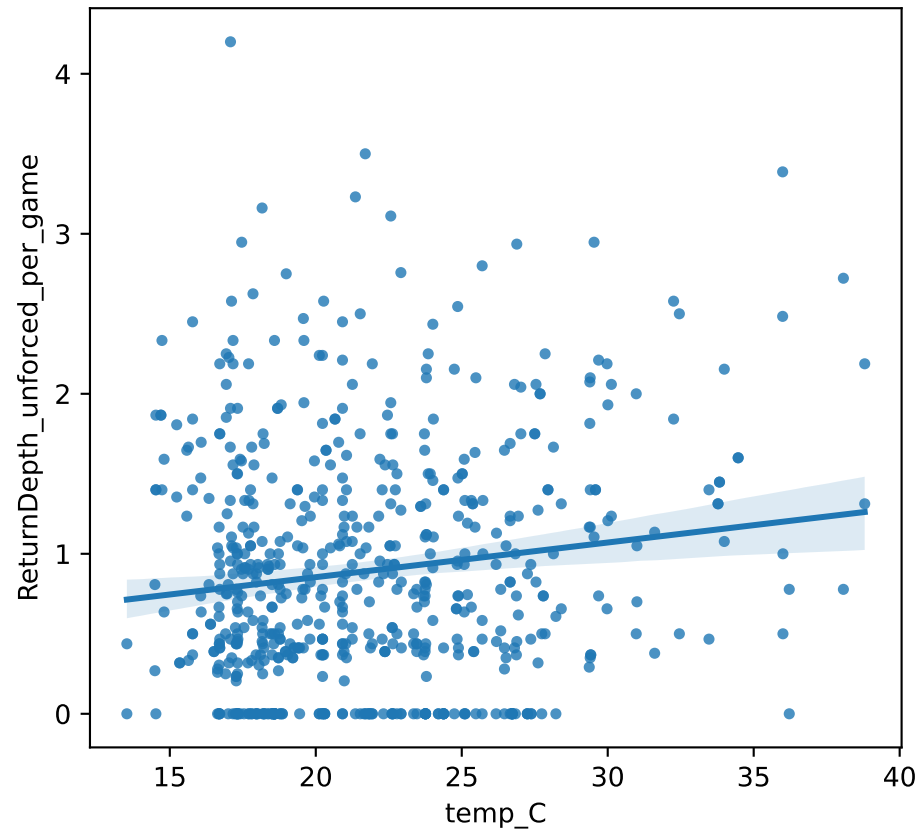
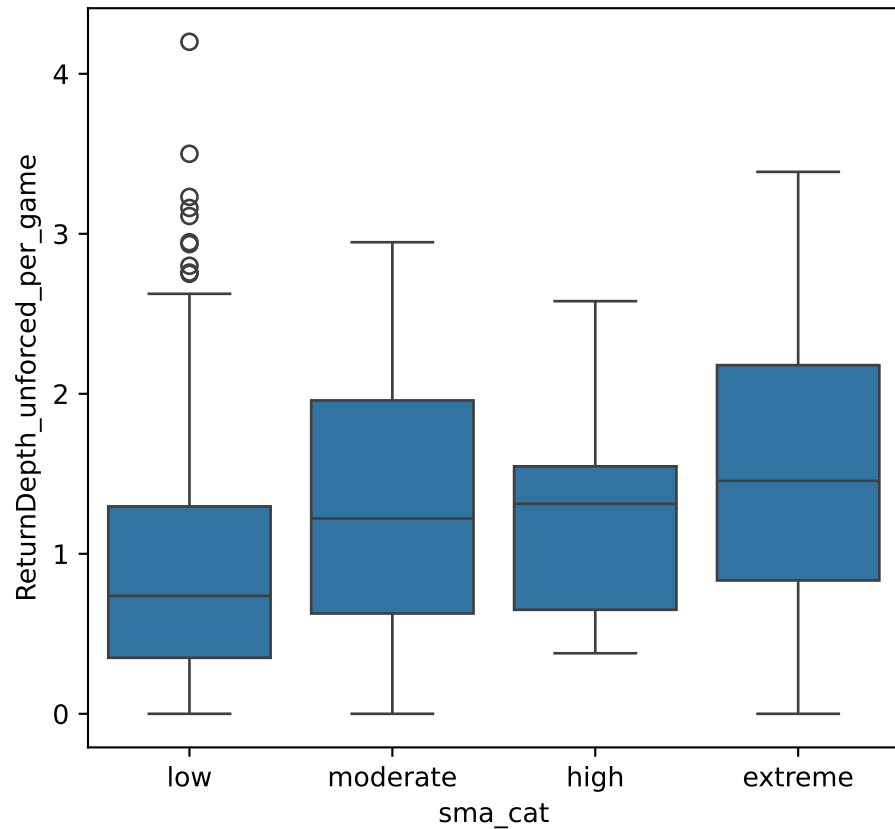


Dunn Post-hoc (p-değerleri)  
ReturnDepth\_unforced\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



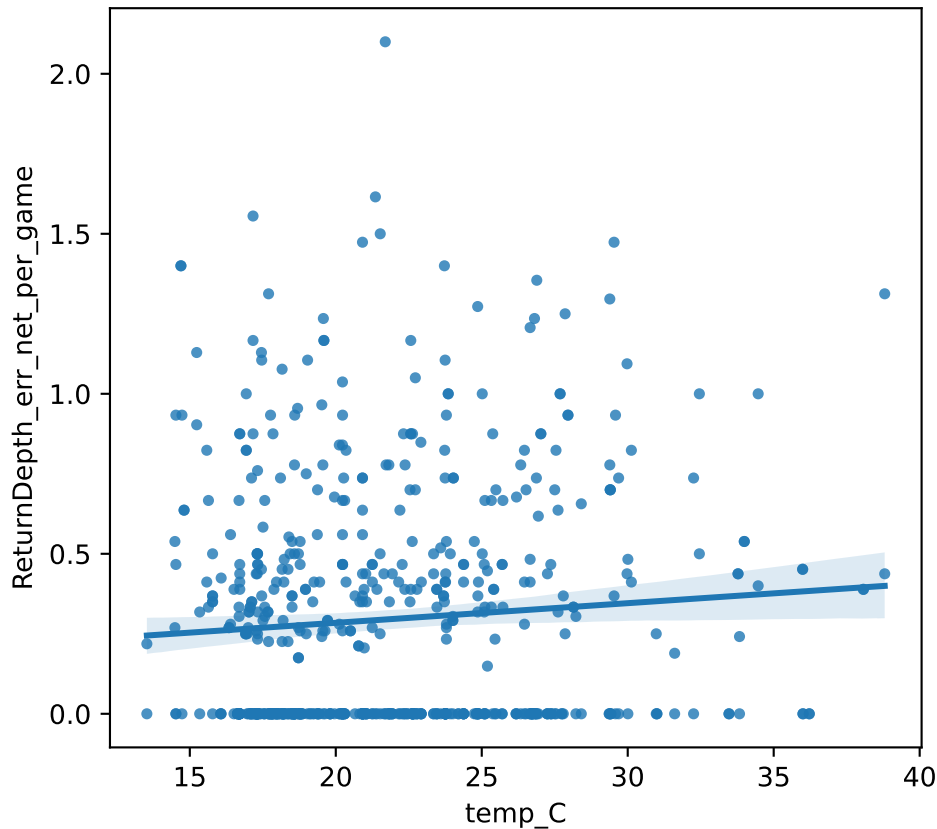
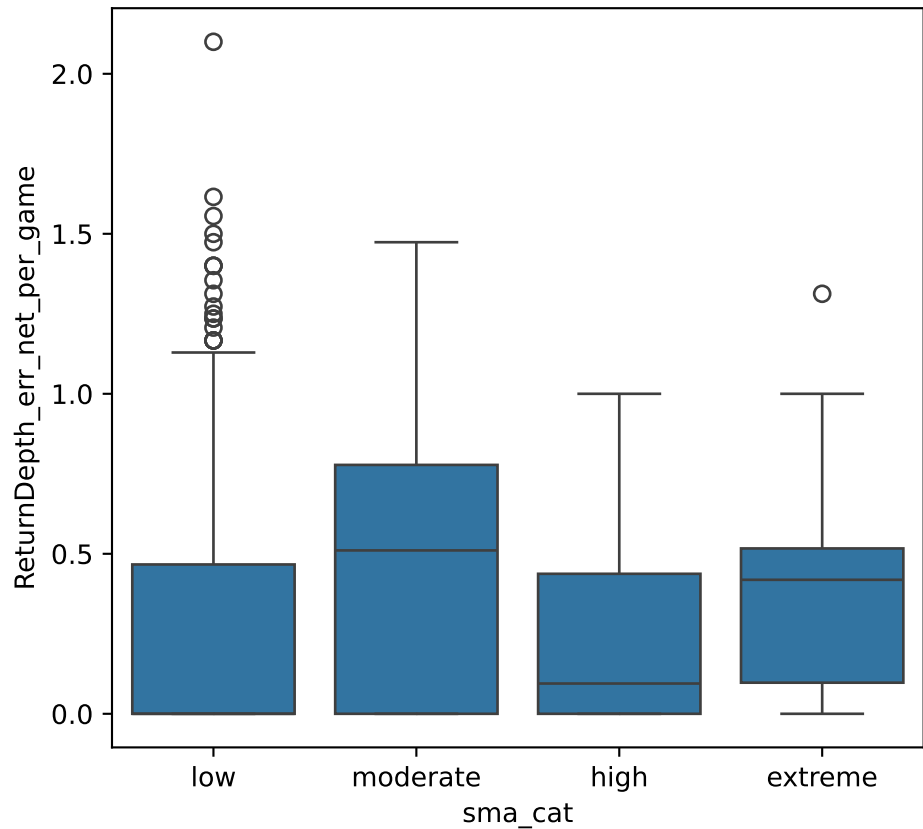
ReturnDepth\_unforced\_per\_game - sma\_cat  
Kruskal p=2.76e-05, Jonckheere p=NA, Corr p=0.02137127627958302  
ReturnDepth\_unforced\_per\_game by sma\_cat ReturnDepth\_unforced\_per\_game vs temp\_C (Spearman r=0.09, p=0.021)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_unforced\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.019 | 1.0      |
| high     | 1.0     | 1.0  | 0.06  | 1.0      |
| low      | 0.019   | 0.06 | 1.0   | 0.009    |
| moderate | 1.0     | 1.0  | 0.009 | 1.0      |

ReturnDepth\_err\_net\_per\_game - sma\_cat  
Kruskal p=0.0169, Jonckheere p=NA, Corr p=0.12165399468751587  
ReturnDepth\_err\_net\_per\_game by sma\_cat    ReturnDepth\_err\_net\_per\_game vs temp\_C (Spearman r=0.06, p=0.122)

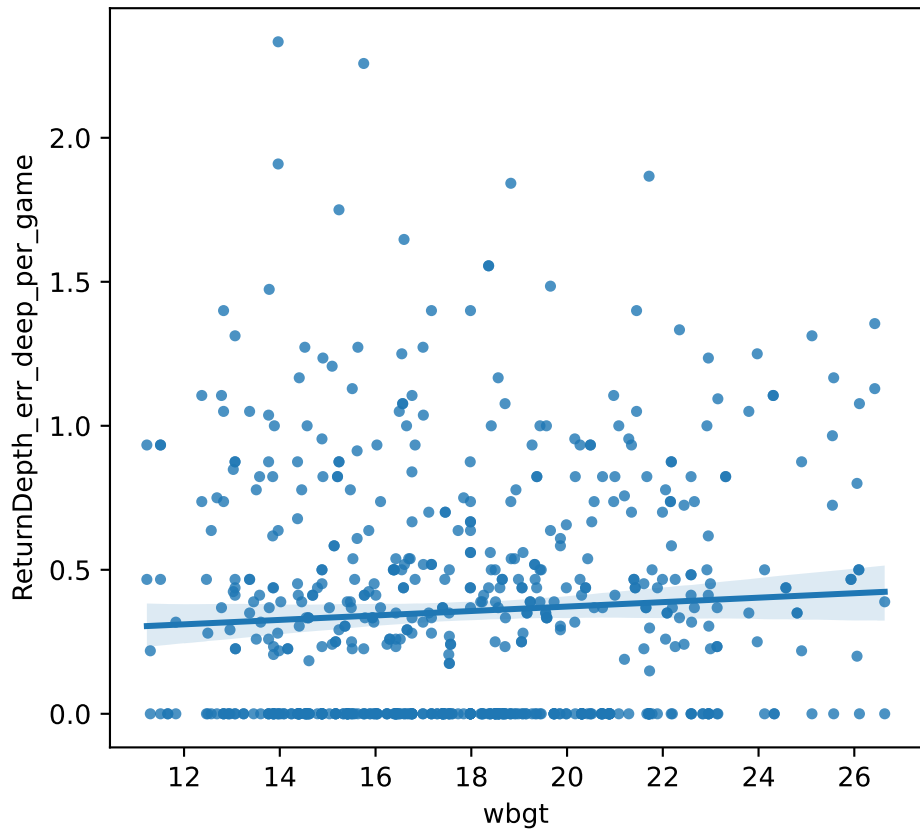


Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_net\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.795 | 0.474 | 1.0      |
| high     | 0.795   | 1.0   | 1.0   | 0.392    |
| low      | 0.474   | 1.0   | 1.0   | 0.043    |
| moderate | 1.0     | 0.392 | 0.043 | 1.0      |

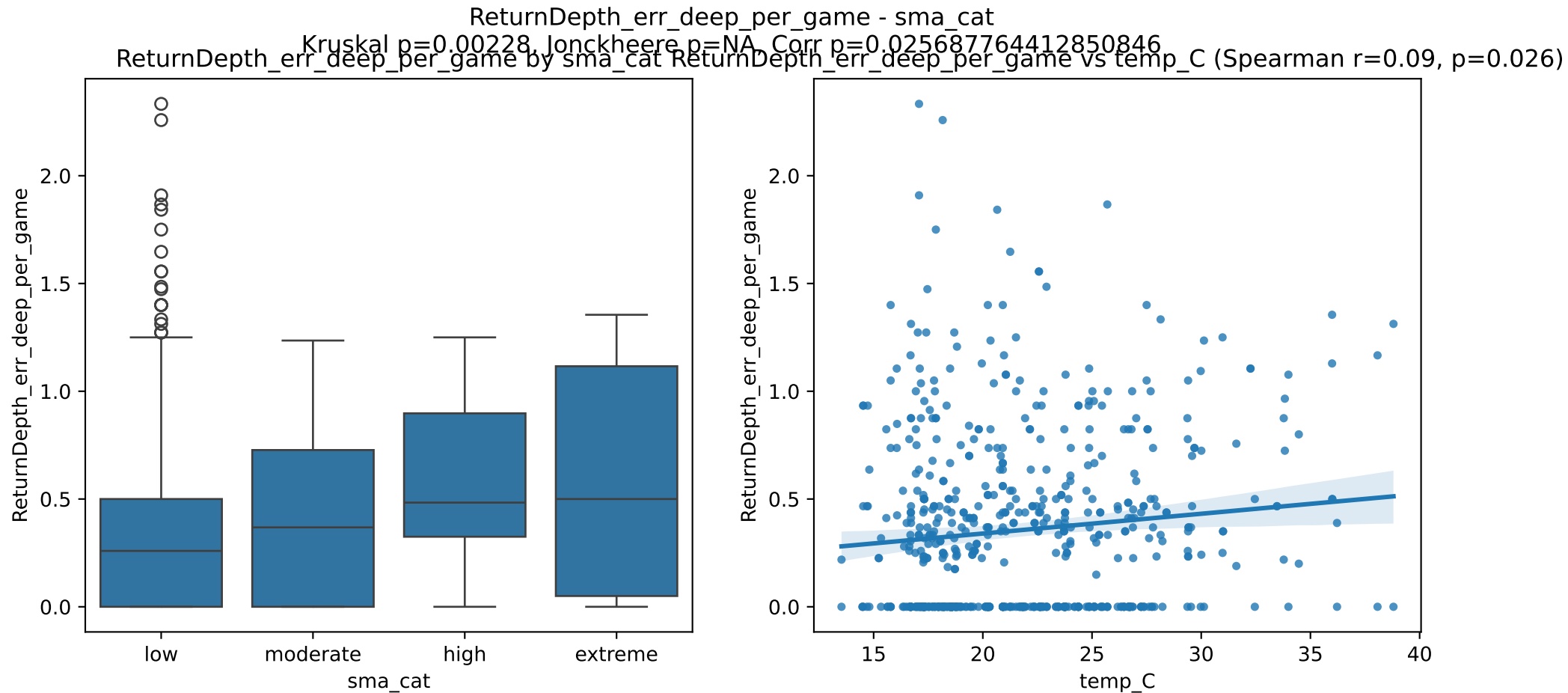
Kruskal p=0.00616, Jonckheere p=NA, Corr. p=0.08831325069719244

ReturnDepth\_err\_deep\_per\_game vs wbgf (Spearman  $r=0.07$ ,  $p=0.088$ )



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_deep\_per\_game by wbgt\_cat

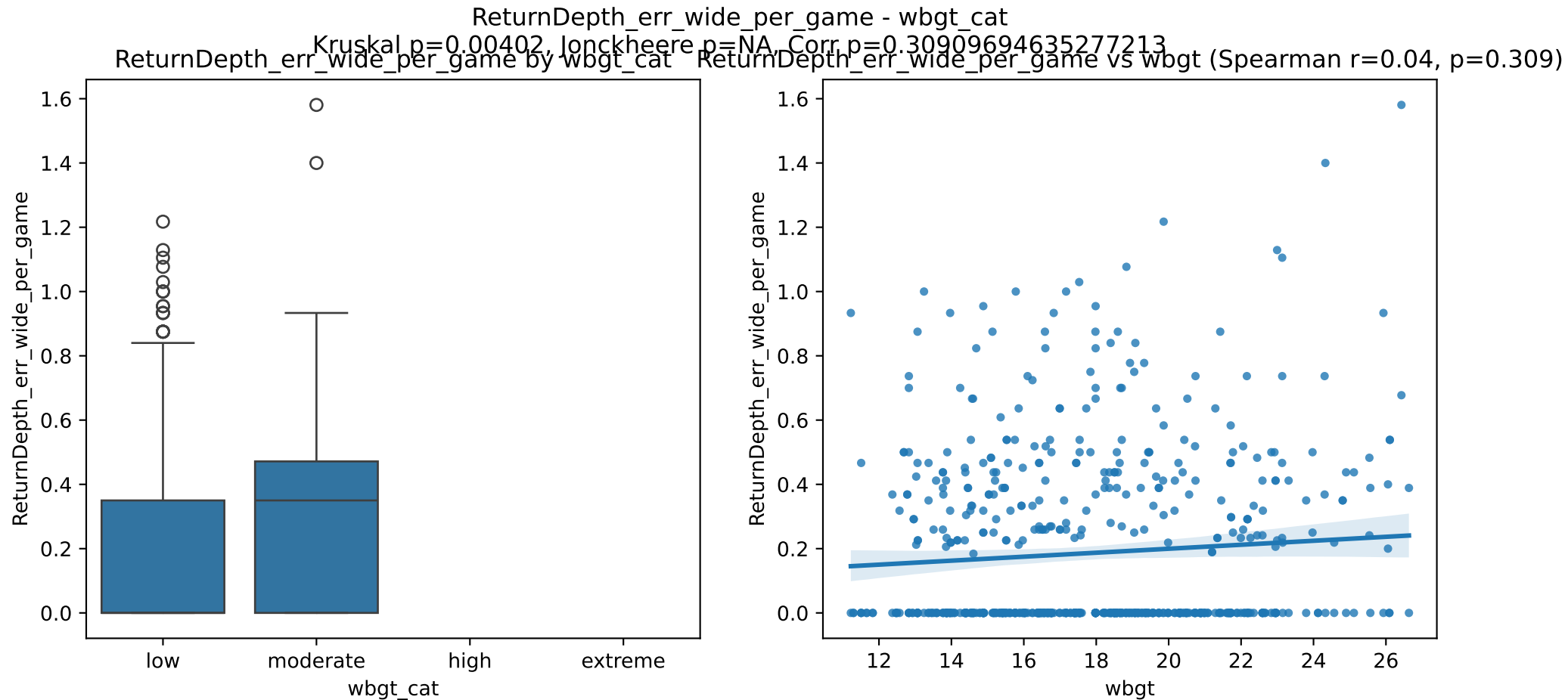
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.006    |
| moderate | 0.006 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_deep\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.25  | 1.0      |
| high     | 1.0     | 1.0   | 0.022 | 0.937    |
| low      | 0.25    | 0.022 | 1.0   | 0.574    |
| moderate | 1.0     | 0.937 | 0.574 | 1.0      |





Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_wide\_per\_game by wbgt\_cat

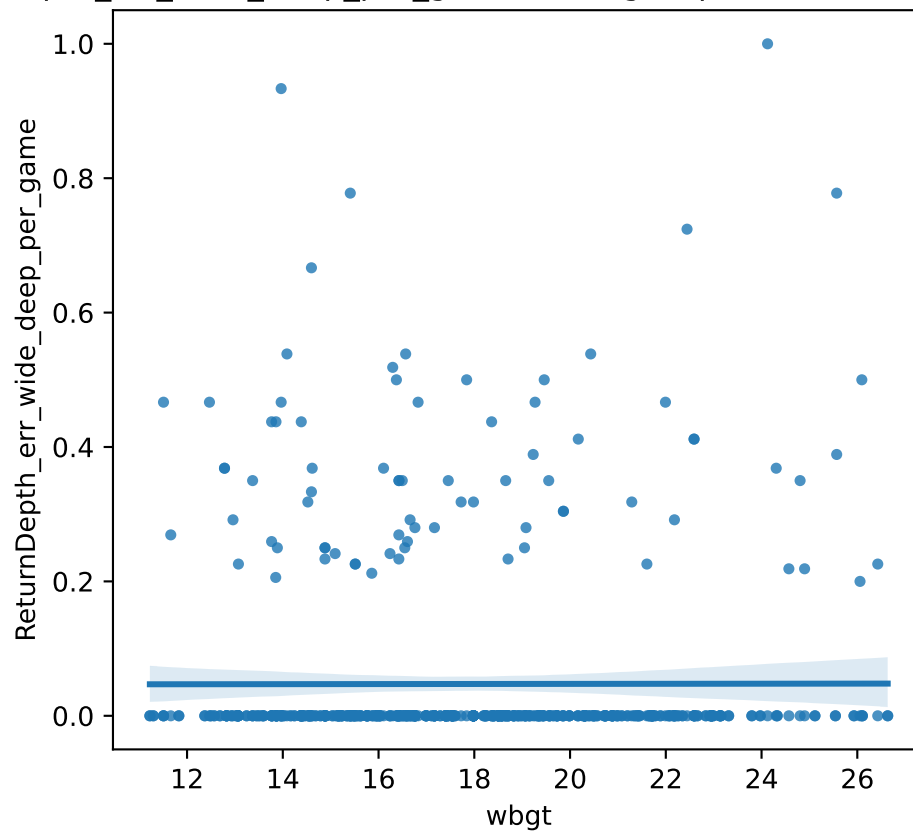
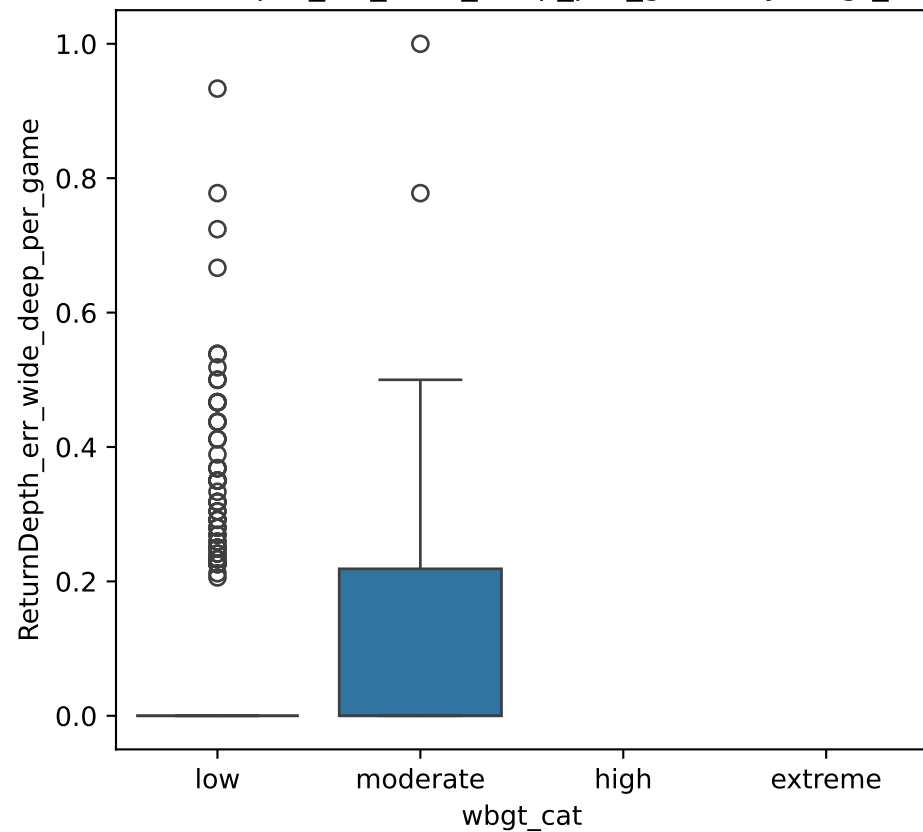
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.004    |
| moderate | 0.004 | 1.0      |



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_wide\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.139 | 1.0      |
| high     | 1.0     | 1.0  | 0.06  | 1.0      |
| low      | 0.139   | 0.06 | 1.0   | 0.074    |
| moderate | 1.0     | 1.0  | 0.074 | 1.0      |

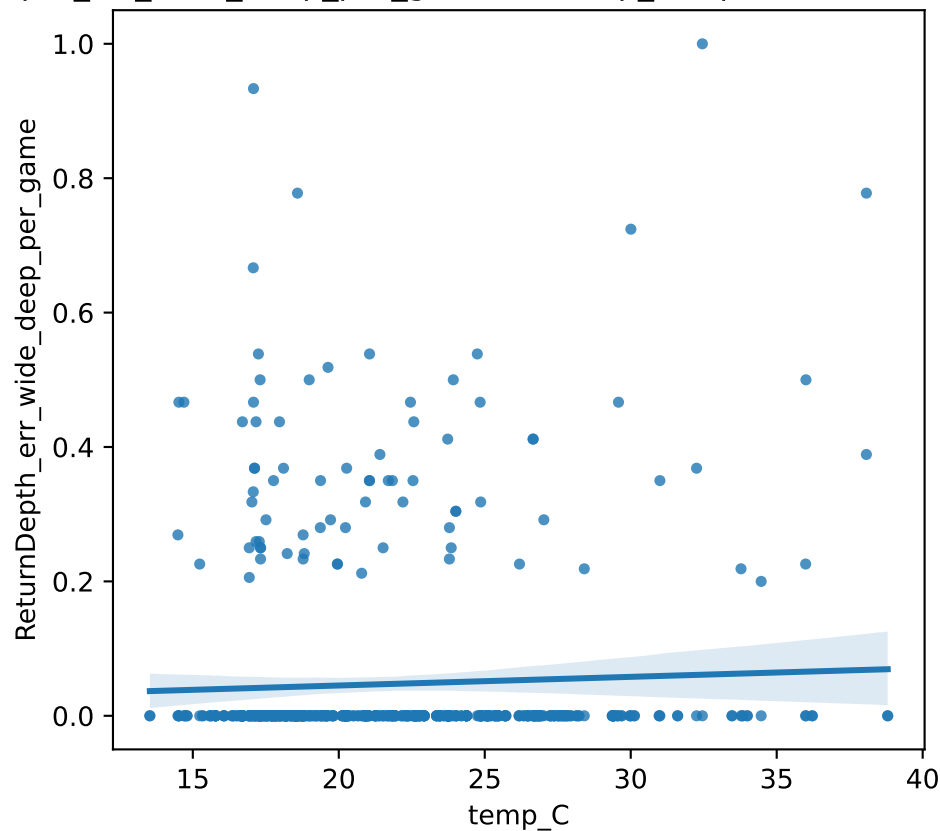
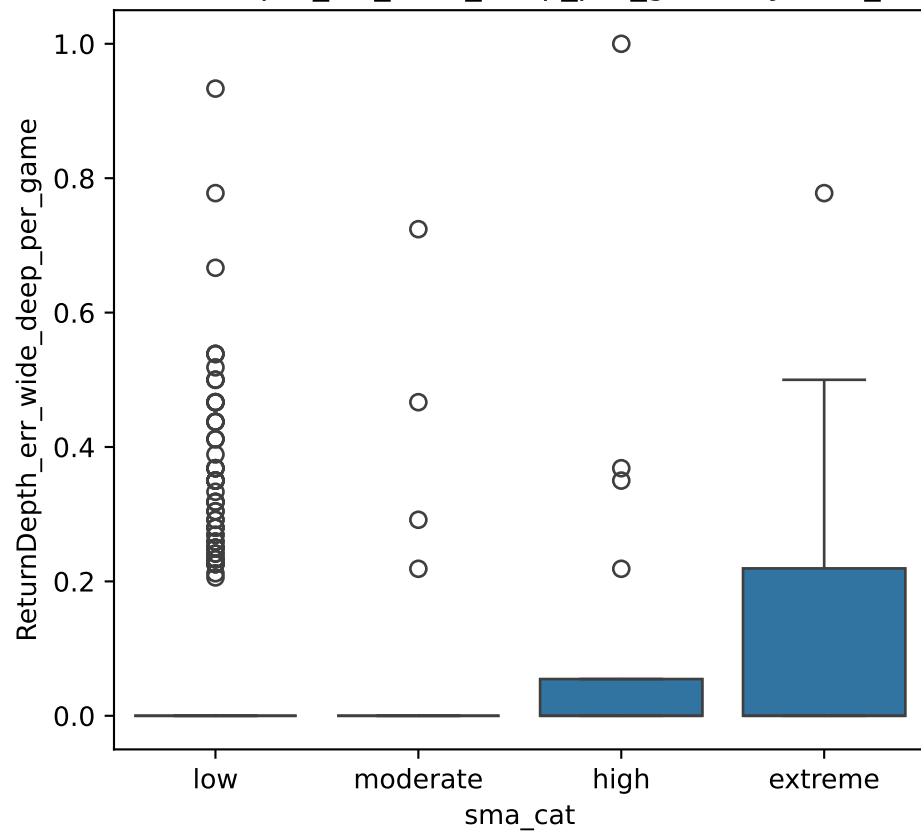
ReturnDepth\_err\_wide\_deep\_per\_game - wbgt\_cat  
 Kruskal p=0.000504, Jonckheere p=NA, Corr p=0.34762097683157367  
 ReturnDepth\_err\_wide\_deep\_per\_game by wbgt\_cat  
 ReturnDepth\_err\_wide\_deep\_per\_game vs wbgt (Spearman r=-0.04, p=0.348)



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_wide\_deep\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.001    |
| moderate | 0.001 | 1.0      |

ReturnDepth\_err\_wide\_deep\_per\_game - sma\_cat  
Kruskal p=0.0217, Jonckheere p=NA, Corr p=0.6452642677249707  
ReturnDepth\_err\_wide\_deep\_per\_game by sma\_cat



Dunn Post-hoc (p-değerleri)  
ReturnDepth\_err\_wide\_deep\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.043 | 0.176    |
| high     | 1.0     | 1.0   | 0.631 | 1.0      |
| low      | 0.043   | 0.631 | 1.0   | 1.0      |
| moderate | 0.176   | 1.0   | 1.0   | 1.0      |

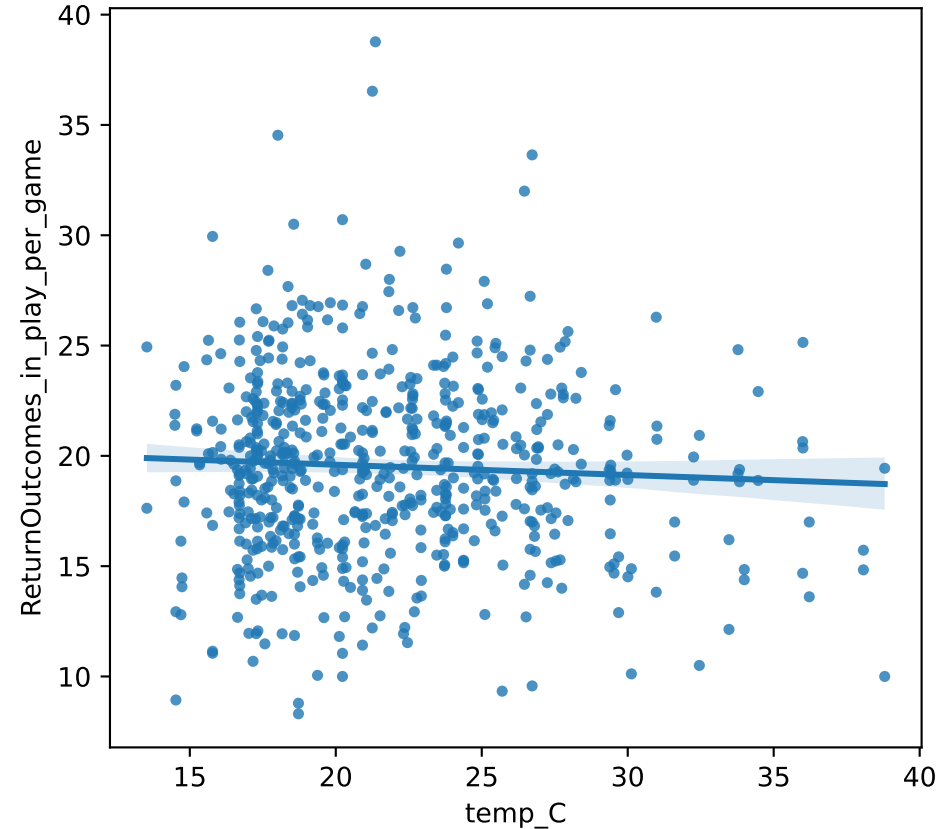
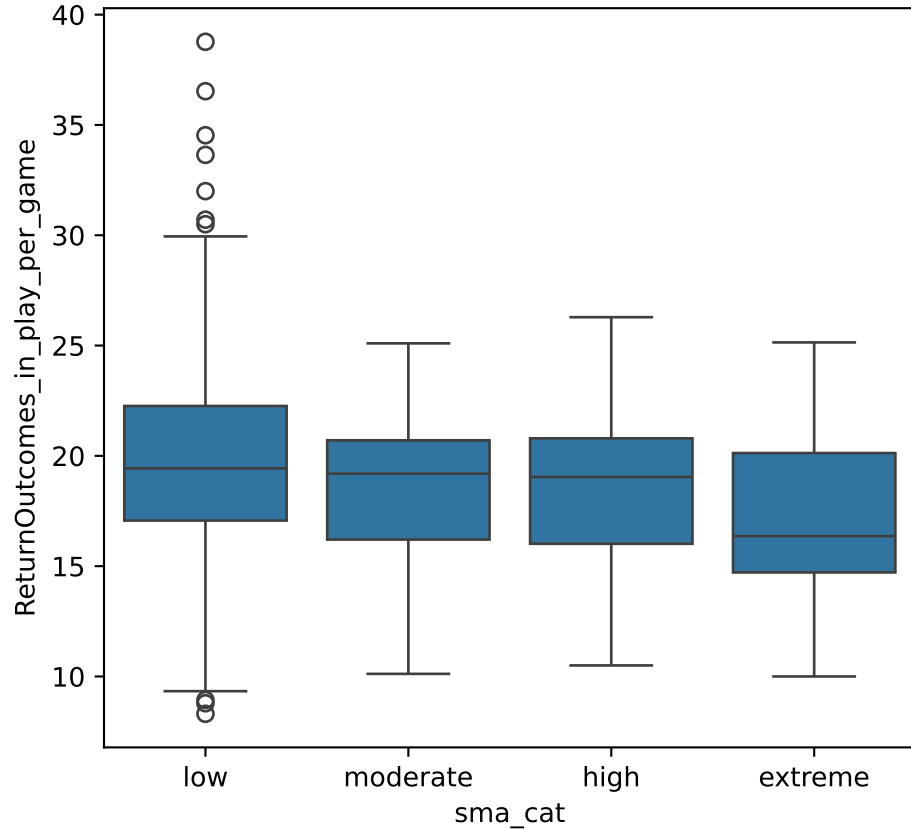


ReturnOutcomes\_in\_play\_per\_game - sma\_cat

Kruskal p=0.1, Jonckheere p=NA, Corr p=0.5388337922955946

ReturnOutcomes\_in\_play\_per\_game by sma\_cat

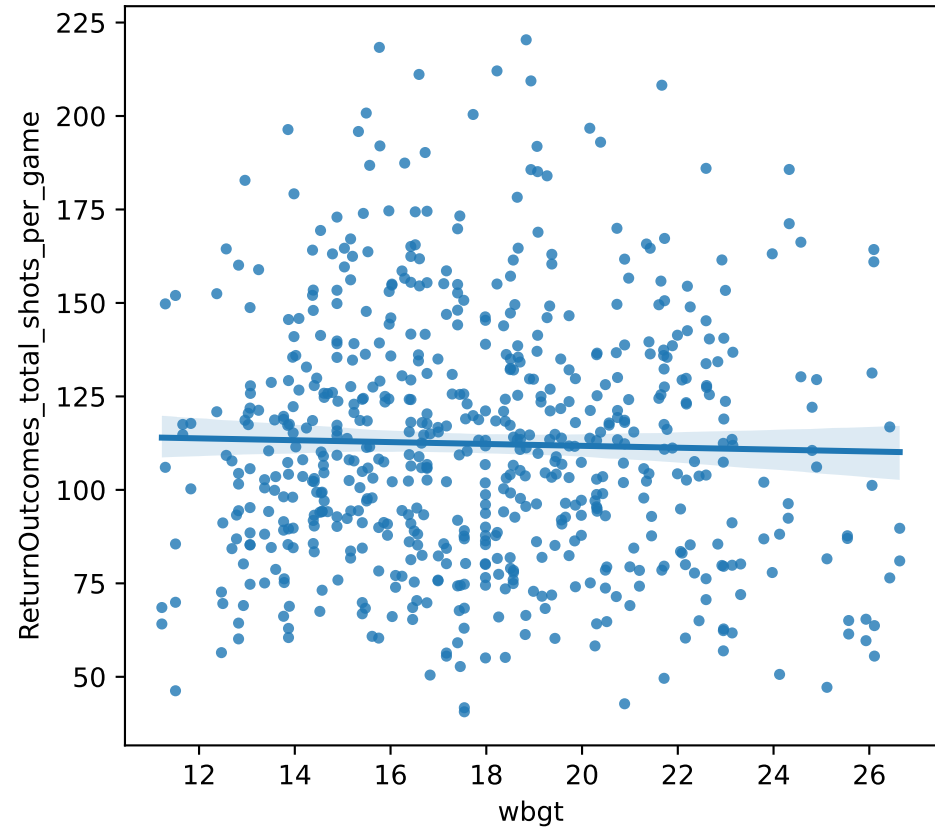
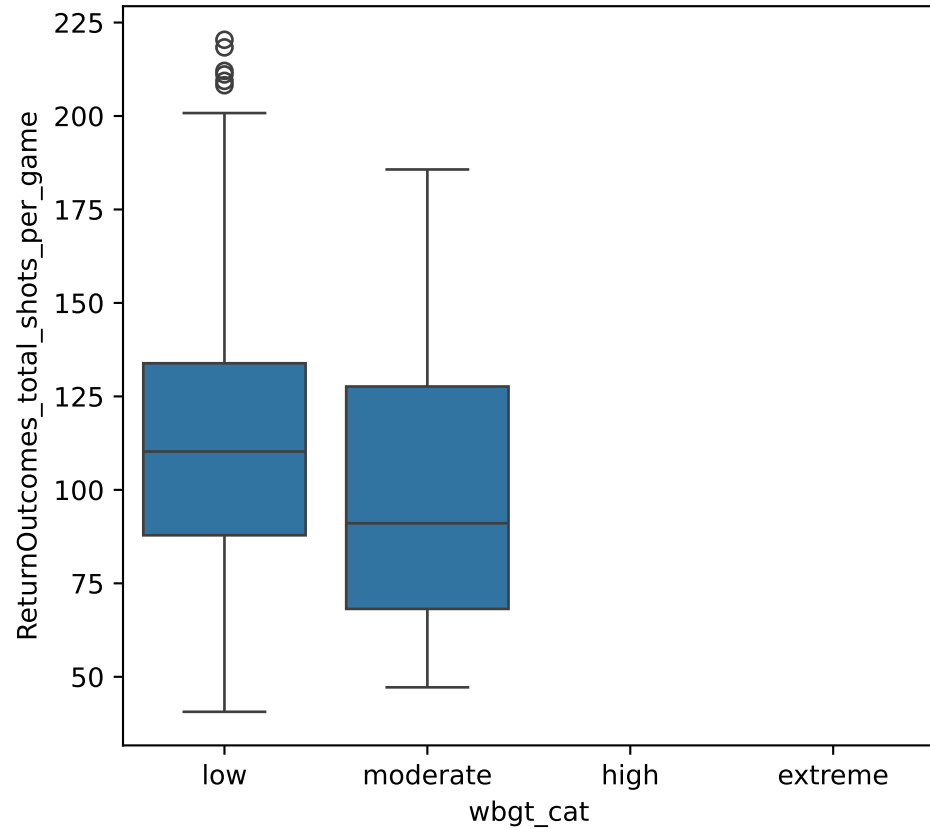
ReturnOutcomes\_in\_play\_per\_game vs temp\_C (Spearman r=-0.02, p=0.539)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_in\_play\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.226 | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 0.226   | 1.0  | 1.0   | 1.0      |
| moderate | 1.0     | 1.0  | 1.0   | 1.0      |

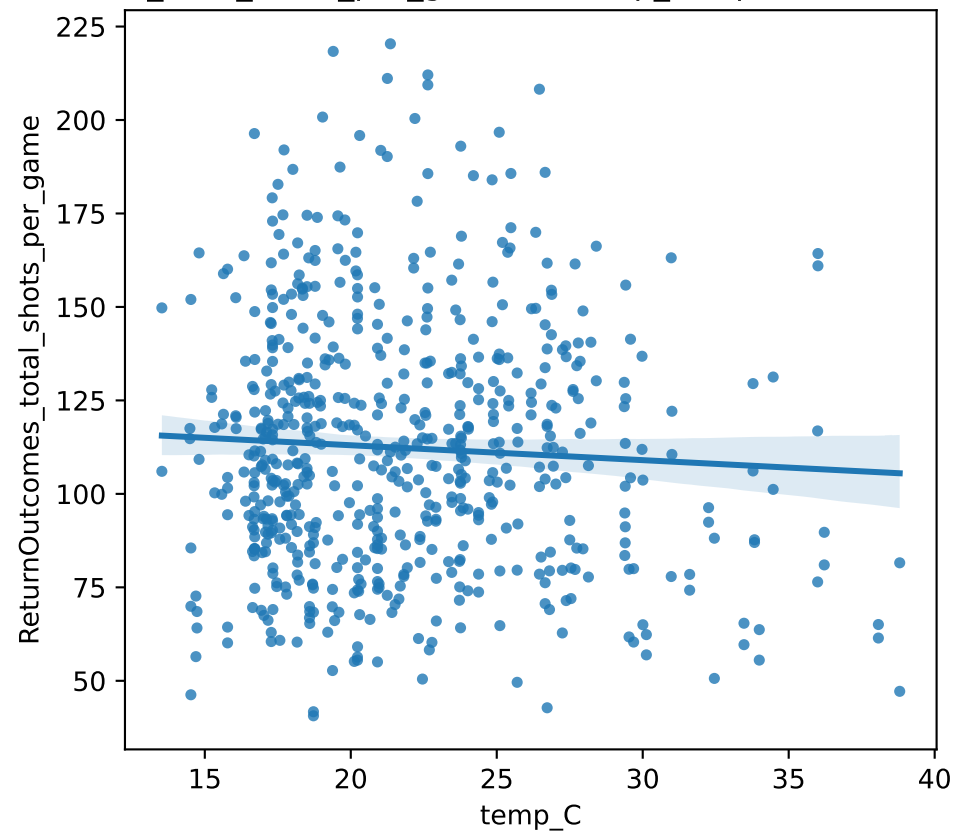
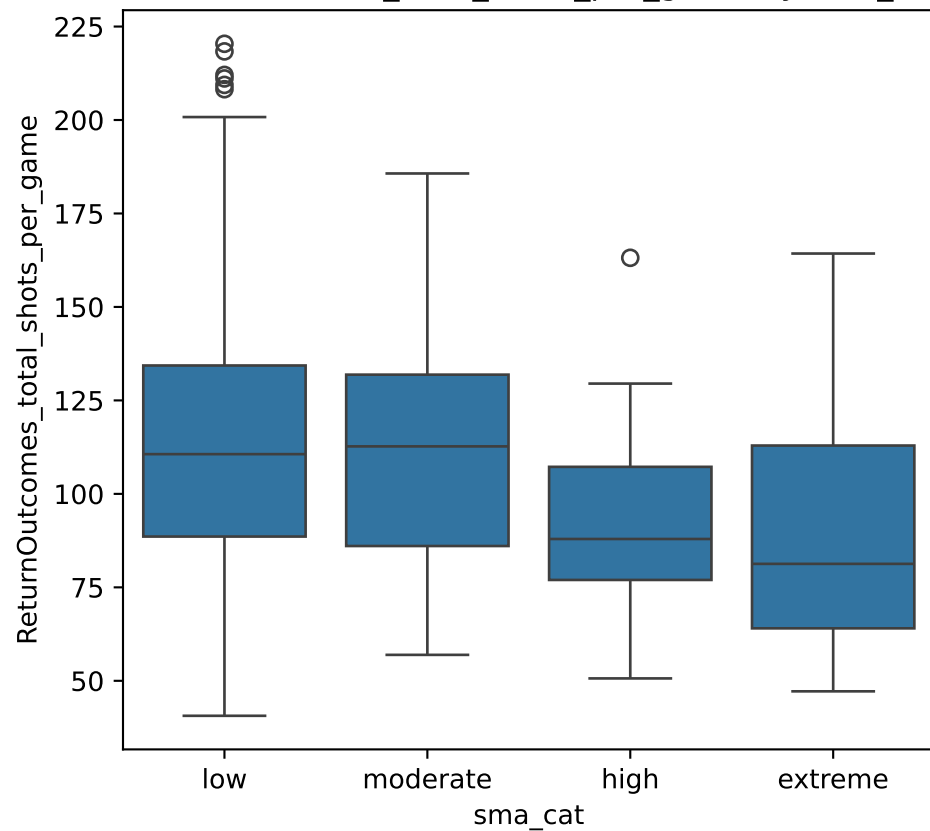
ReturnOutcomes\_total\_shots\_per\_game - wbgt\_cat  
Kruskal p=0.0517, Jonckheere p=NA, Corr p=0.7907291816762226  
ReturnOutcomes\_total\_shots\_per\_game by wbgt\_cat  
ReturnOutcomes\_total\_shots\_per\_game vs wbgt (Spearman r=-0.01, p=0.791)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_total\_shots\_per\_game by wbg\_t\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.052    |
| moderate | 0.052 | 1.0      |

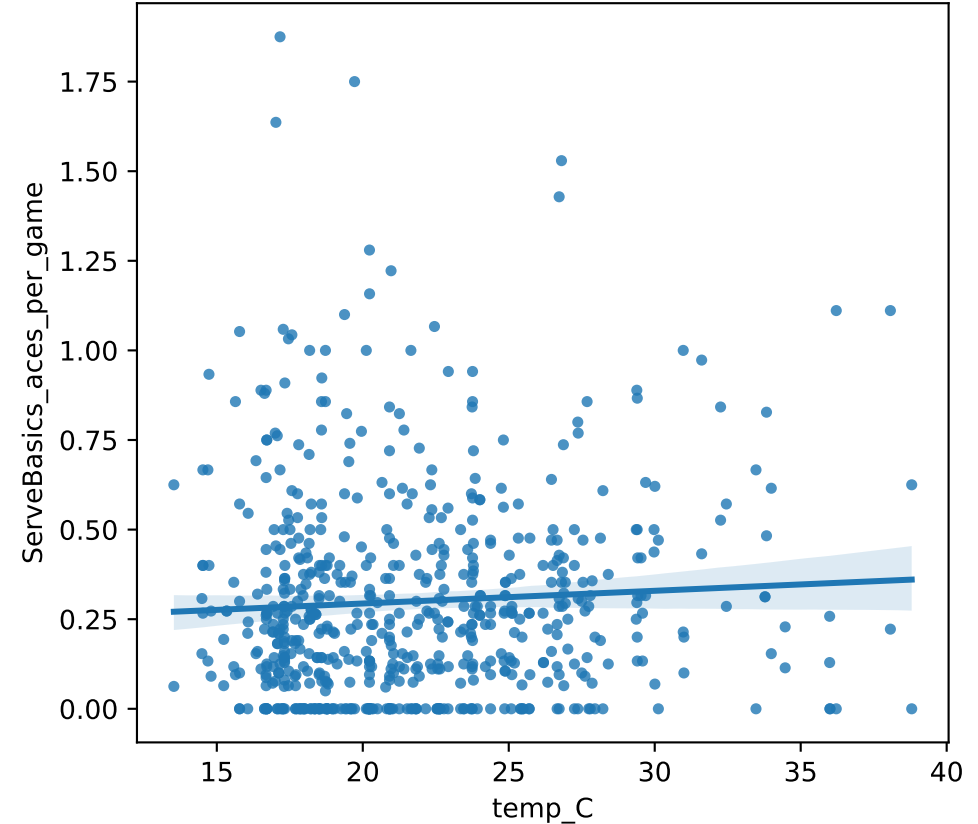
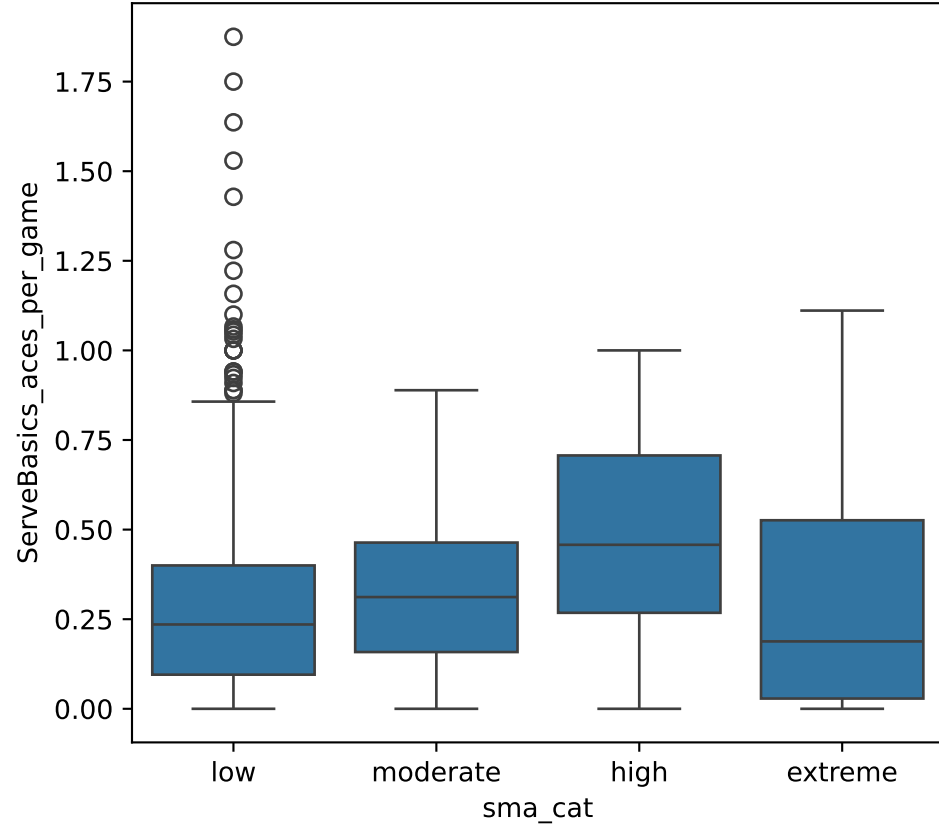
ReturnOutcomes\_total\_shots\_per\_game - sma\_cat  
Kruskal p=0.00907, Jonckheere p=NA, Corr p=0.8484424608353104  
ReturnOutcomes\_total\_shots\_per\_game by sma\_cat  
ReturnOutcomes\_total\_shots\_per\_game vs temp\_C (Spearman r=-0.01, p=0.848)



Dunn Post-hoc (p-değerleri)  
ReturnOutcomes\_total\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.106 | 0.266    |
| high     | 1.0     | 1.0   | 0.077 | 0.231    |
| low      | 0.106   | 0.077 | 1.0   | 1.0      |
| moderate | 0.266   | 0.231 | 1.0   | 1.0      |

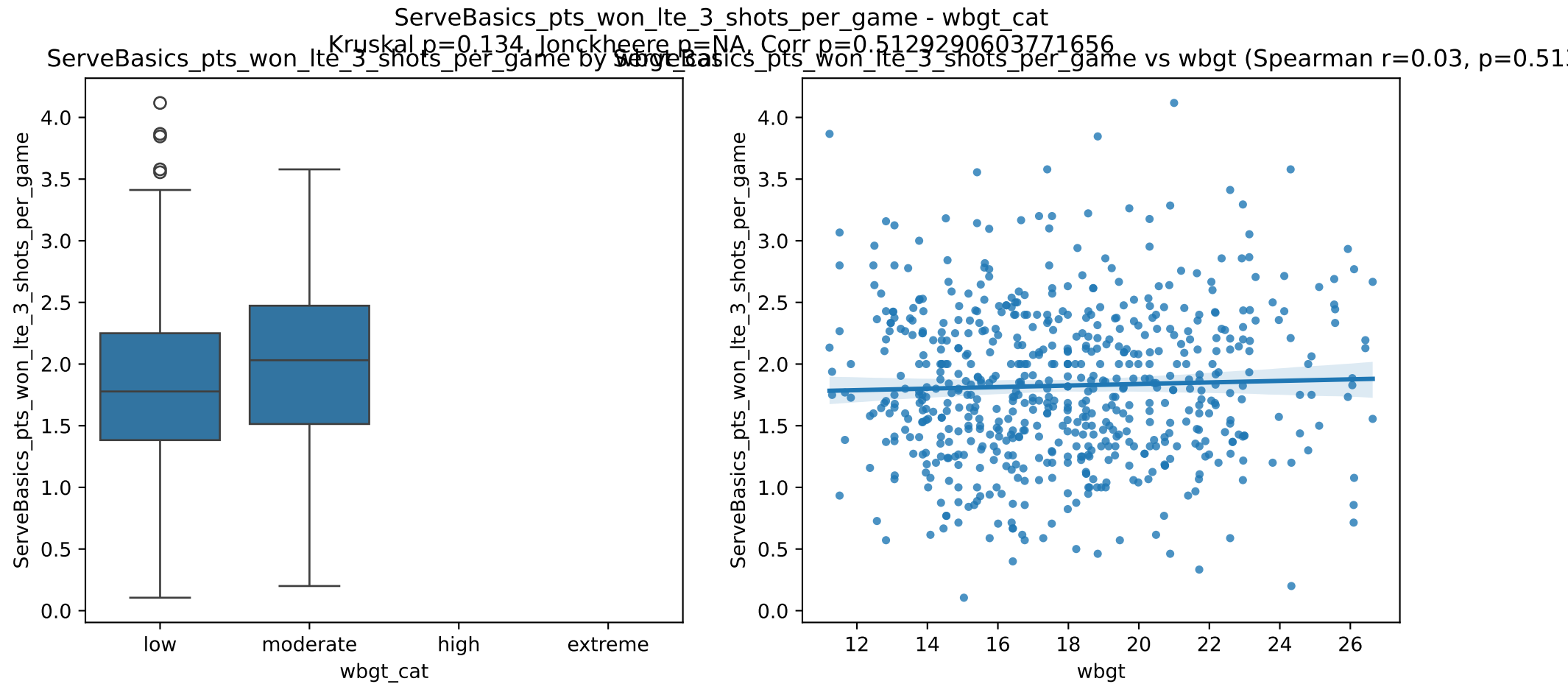
ServeBasics\_aces\_per\_game - sma\_cat  
Kruskal p=0.0232, Jonckheere p=NA, Corr p=0.10454370922558197  
ServeBasics\_aces\_per\_game by sma\_cat  
ServeBasics\_aces\_per\_game vs temp\_C (Spearman r=0.06, p=0.105)



Dunn Post-hoc (p-değerleri)  
ServeBasics\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.213 | 1.0   | 1.0      |
| high     | 0.213   | 1.0   | 0.042 | 1.0      |
| low      | 1.0     | 0.042 | 1.0   | 0.75     |
| moderate | 1.0     | 1.0   | 0.75  | 1.0      |

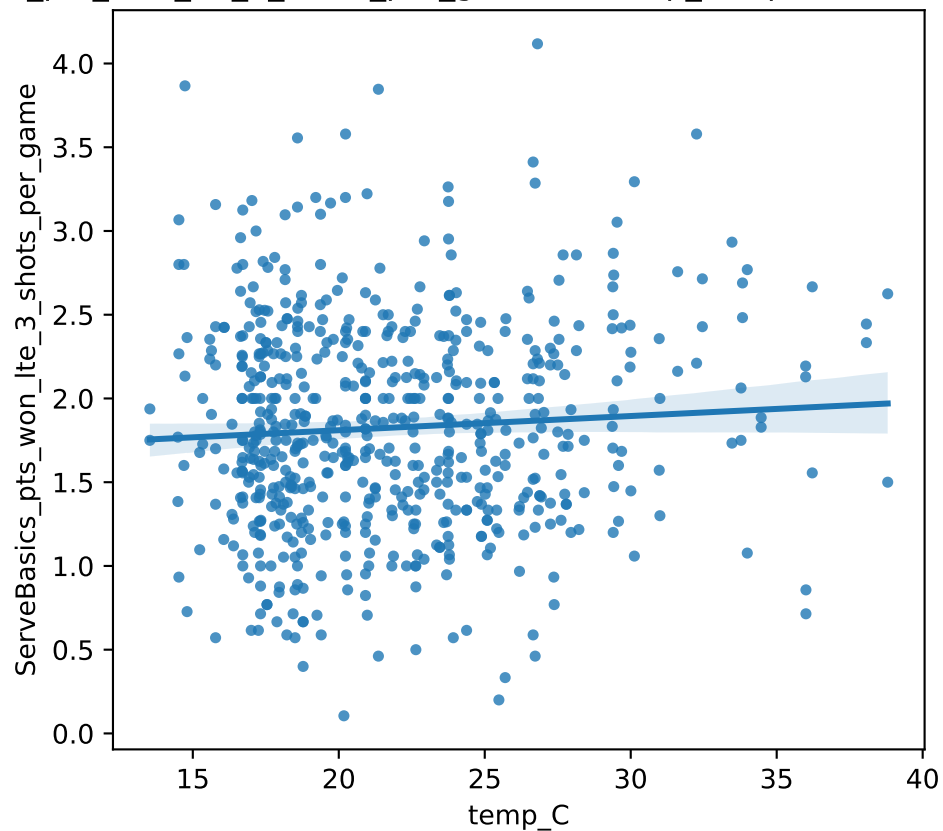
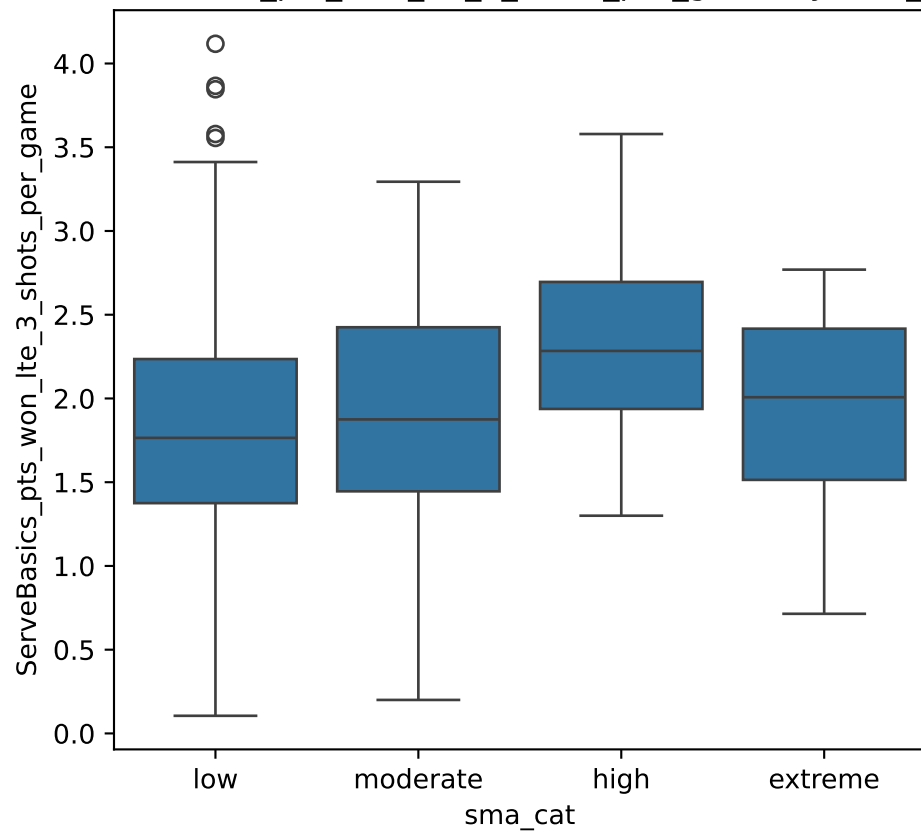




Dunn Post-hoc (p-değerleri)  
ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game by wbgc\_cat

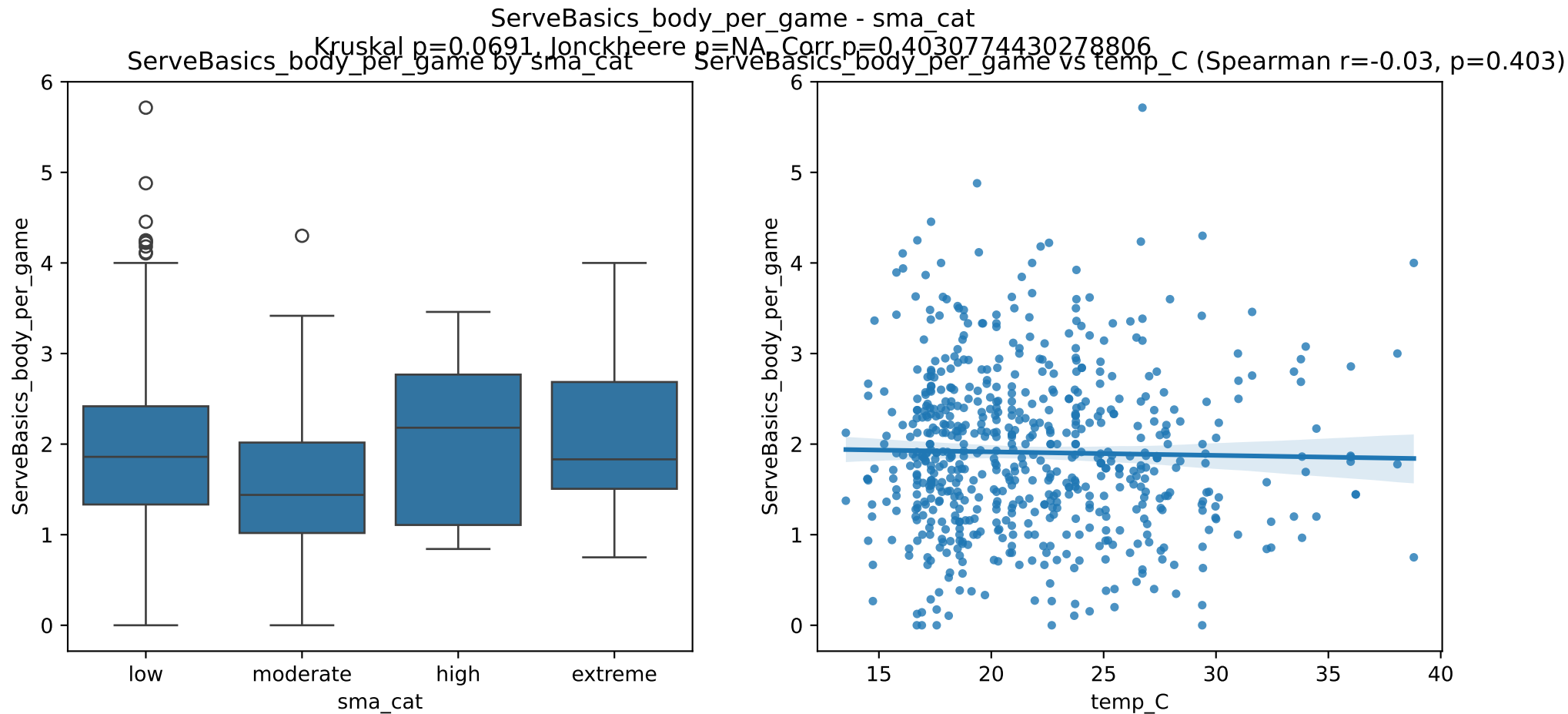
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.134    |
| moderate | 0.134 | 1.0      |

ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game - sma\_cat  
Kruskal p=0.0123, Jonckheere p=NA, Corr p=0.4460262564641282  
ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game by sma\_cat  
ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game vs temp\_C (Spearman r=0.03, p=0.4460262564641282)



Dunn Post-hoc (p-değerleri)  
ServeBasics\_pts\_won\_lte\_3\_shots\_per\_game by sma\_cat

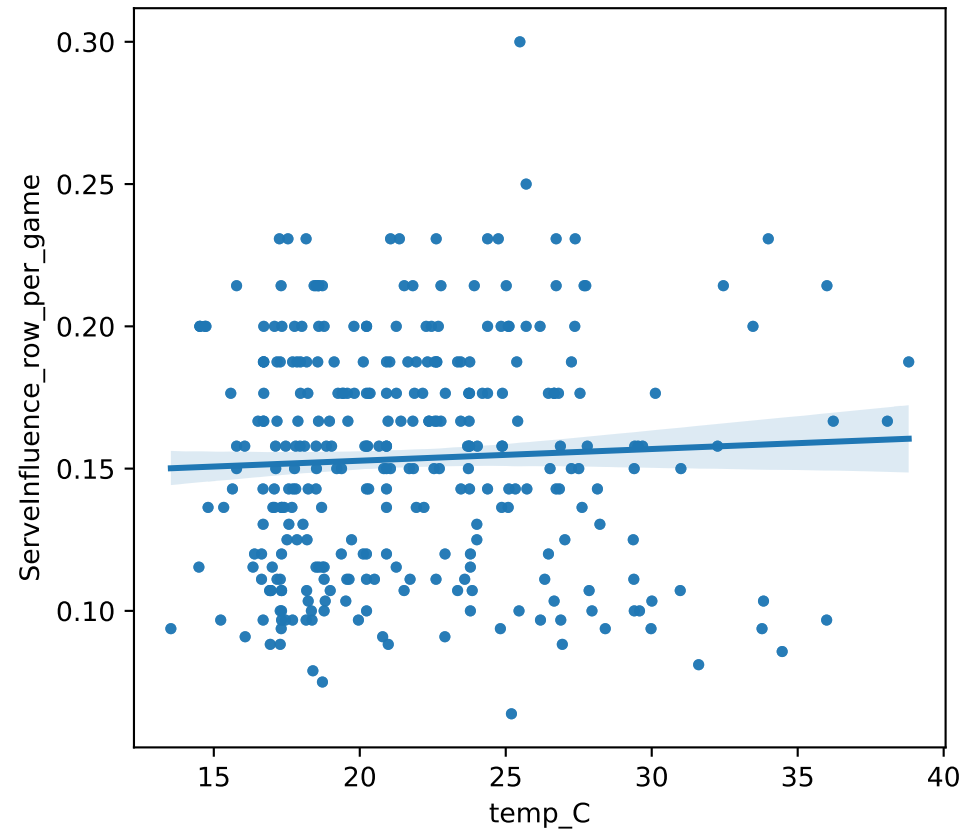
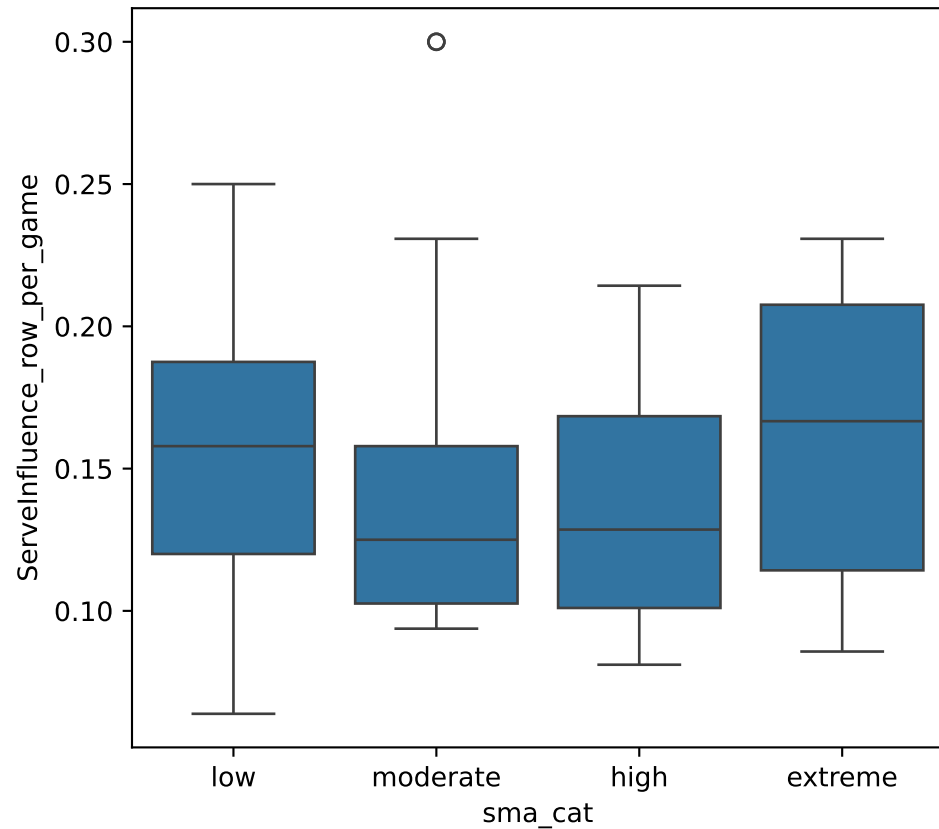
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.757 | 1.0   | 1.0      |
| high     | 0.757   | 1.0   | 0.012 | 0.333    |
| low      | 1.0     | 0.012 | 1.0   | 1.0      |
| moderate | 1.0     | 0.333 | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
ServeBasics\_body\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 0.384    |
| high     | 1.0     | 1.0   | 1.0   | 0.361    |
| low      | 1.0     | 1.0   | 1.0   | 0.065    |
| moderate | 0.384   | 0.361 | 0.065 | 1.0      |

ServeInfluence\_row\_per\_game - sma\_cat  
Kruskal p=0.0371, Jonckheere p=NA, Corr p=0.07937481864814323  
ServeInfluence\_row\_per\_game by sma\_cat  
ServeInfluence\_row\_per\_game vs temp\_C (Spearman r=0.07, p=0.079)

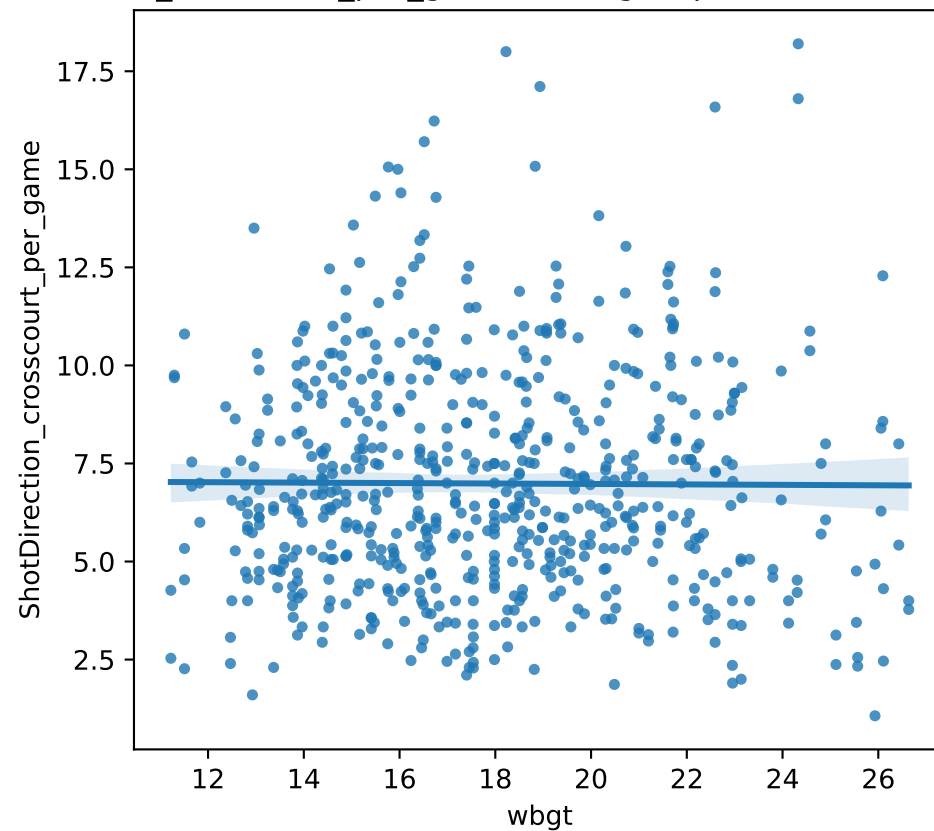
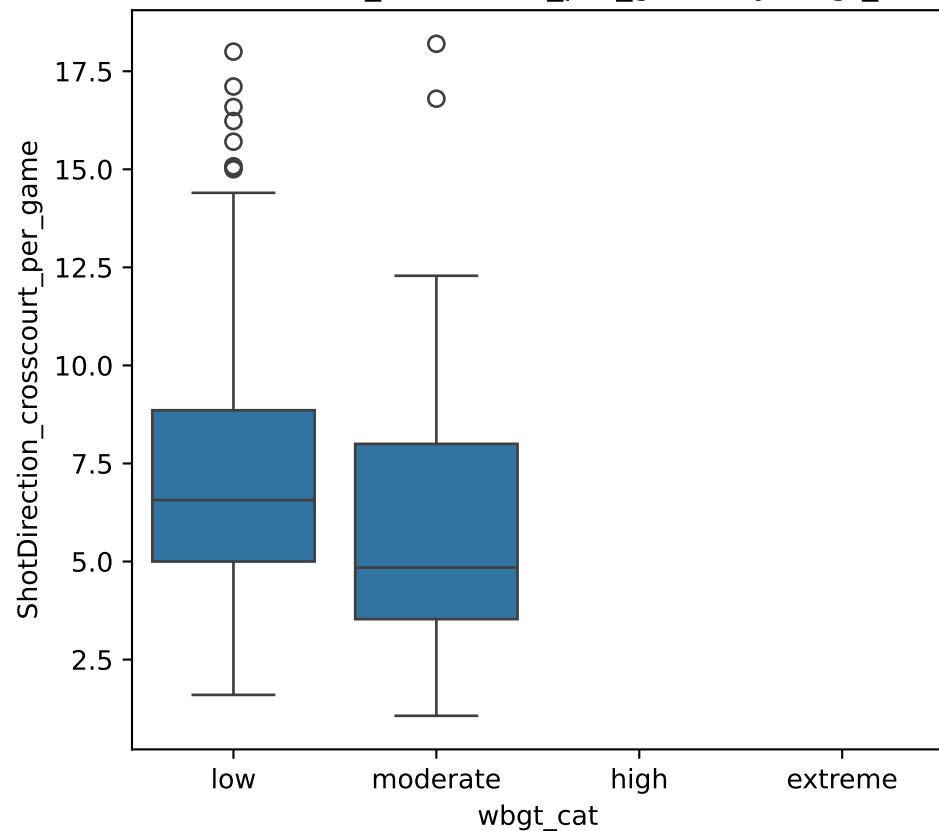


Dunn Post-hoc (p-değerleri)  
ServeInfluence\_row\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.54  | 1.0   | 0.262    |
| high     | 0.54    | 1.0   | 0.709 | 1.0      |
| low      | 1.0     | 0.709 | 1.0   | 0.121    |
| moderate | 0.262   | 1.0   | 0.121 | 1.0      |



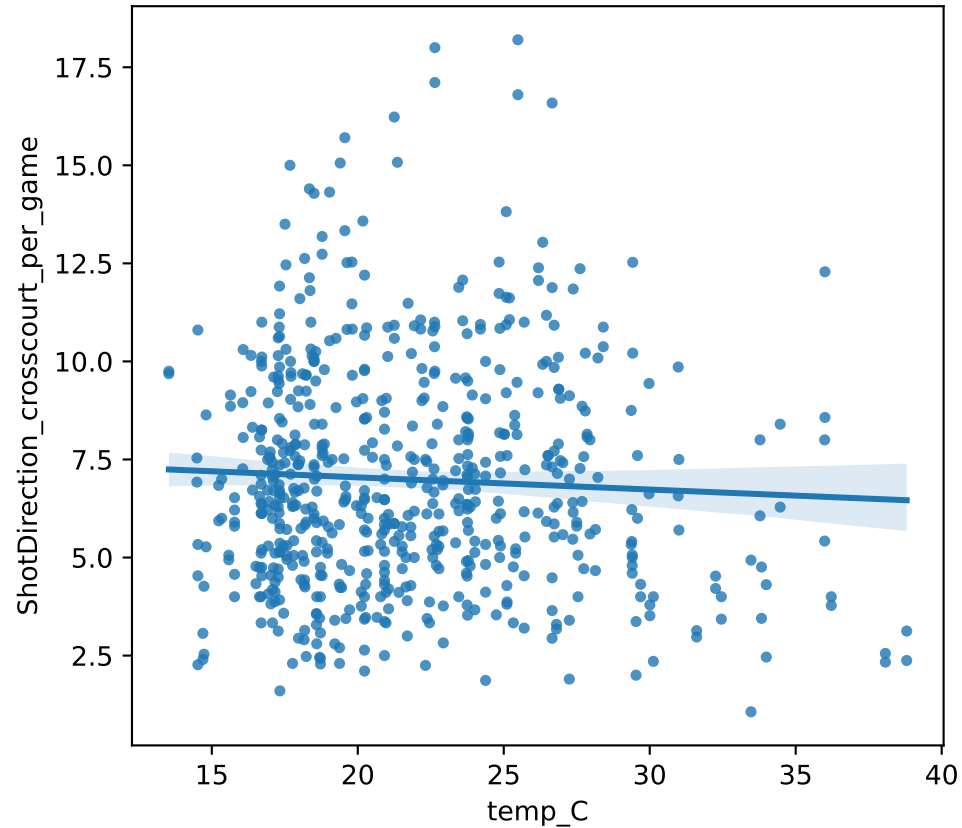
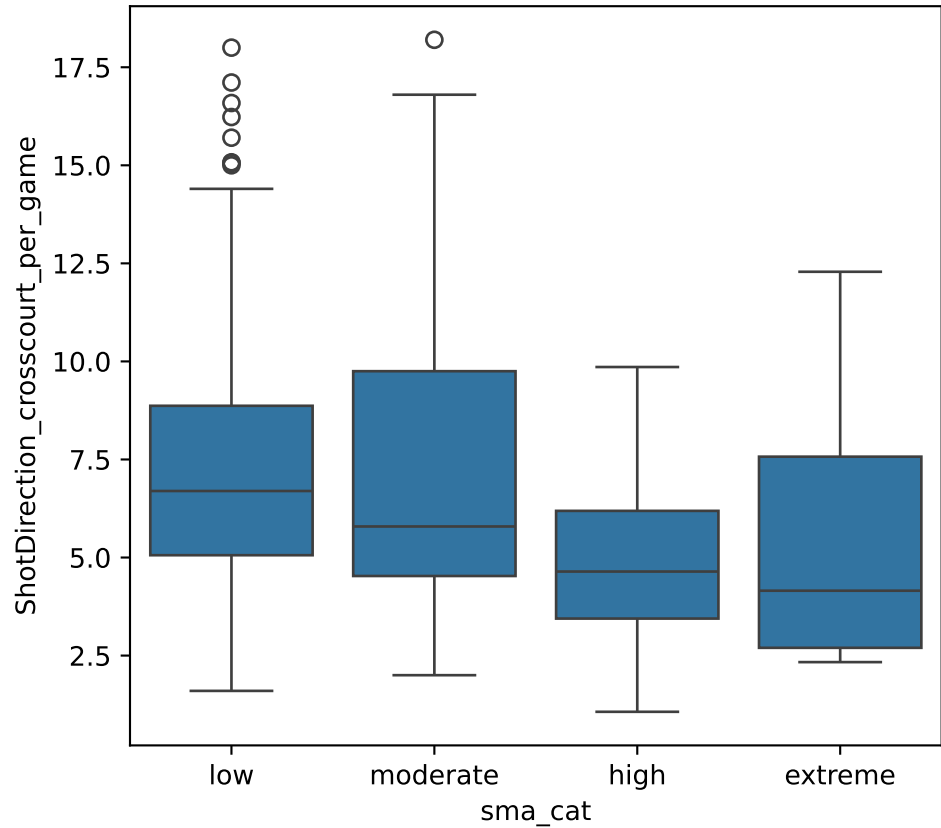
ShotDirection\_crosscourt\_per\_game - wbgc\_cat  
Kruskal p=0.0226, Jonckheere p=NA, Corr p=0.8260322908176867  
ShotDirection\_crosscourt\_per\_game by wbgc\_cat



Dunn Post-hoc (p-değerleri)  
ShotDirection\_crosscourt\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.023    |
| moderate | 0.023 | 1.0      |

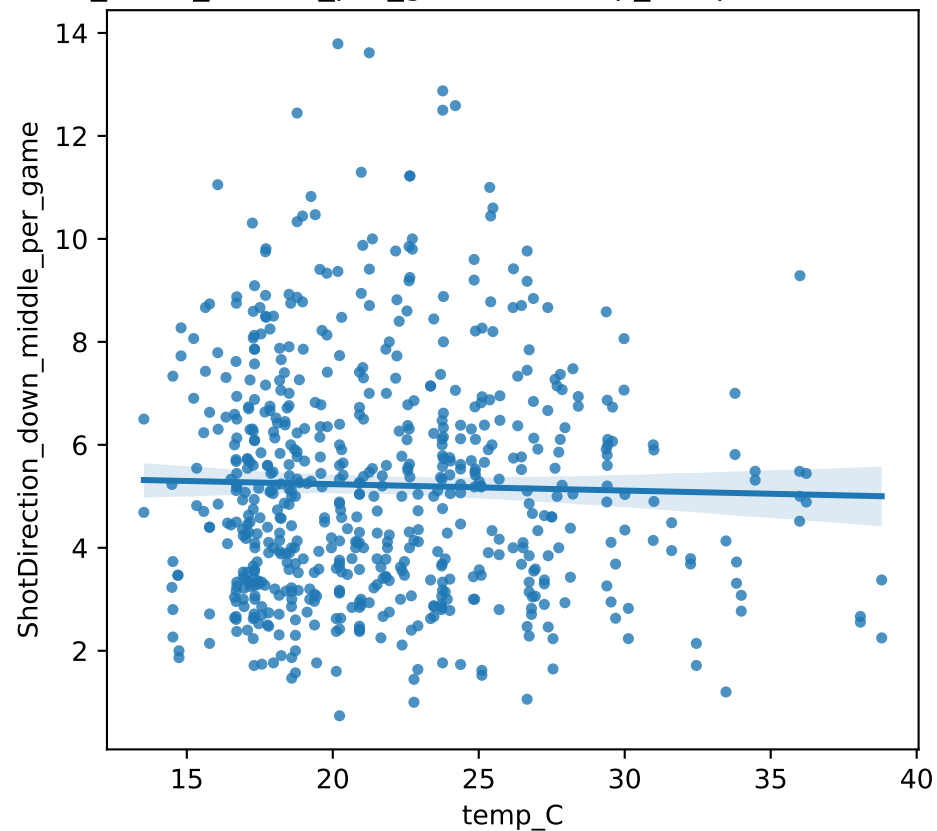
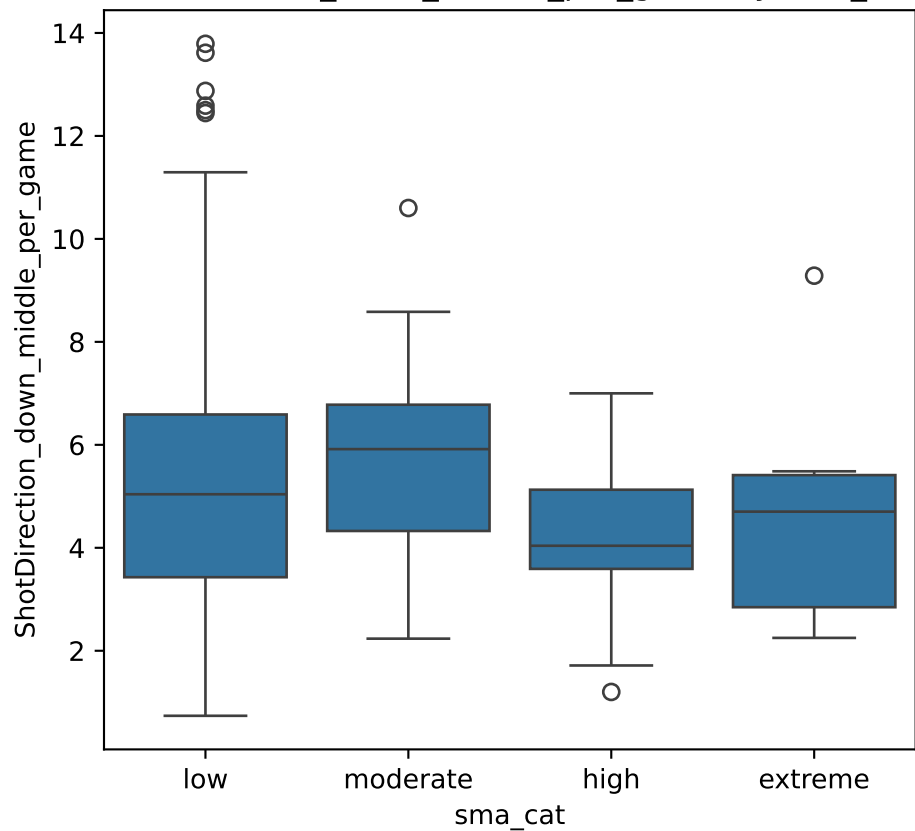
ShotDirection\_crosscourt\_per\_game - sma\_cat  
Kruskal p=0.00214, Jonckheere p=NA, Corr p=0.6781886833017488  
ShotDirection\_crosscourt\_per\_game by sma\_cat ShotDirection\_crosscourt\_per\_game vs temp\_C (Spearman r=-0.02, p=0.678)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_crosscourt\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.084 | 0.452    |
| high     | 1.0     | 1.0   | 0.017 | 0.186    |
| low      | 0.084   | 0.017 | 1.0   | 1.0      |
| moderate | 0.452   | 0.186 | 1.0   | 1.0      |

ShotDirection\_down\_middle\_per\_game - sma\_cat  
Kruskal p=0.06, Jonckheere p=NA, Corr p=0.839565633134905  
ShotDirection\_down\_middle\_per\_game by sma\_cat  
ShotDirection\_down\_middle\_per\_game vs temp\_C (Spearman r=0.01, p=0.840)

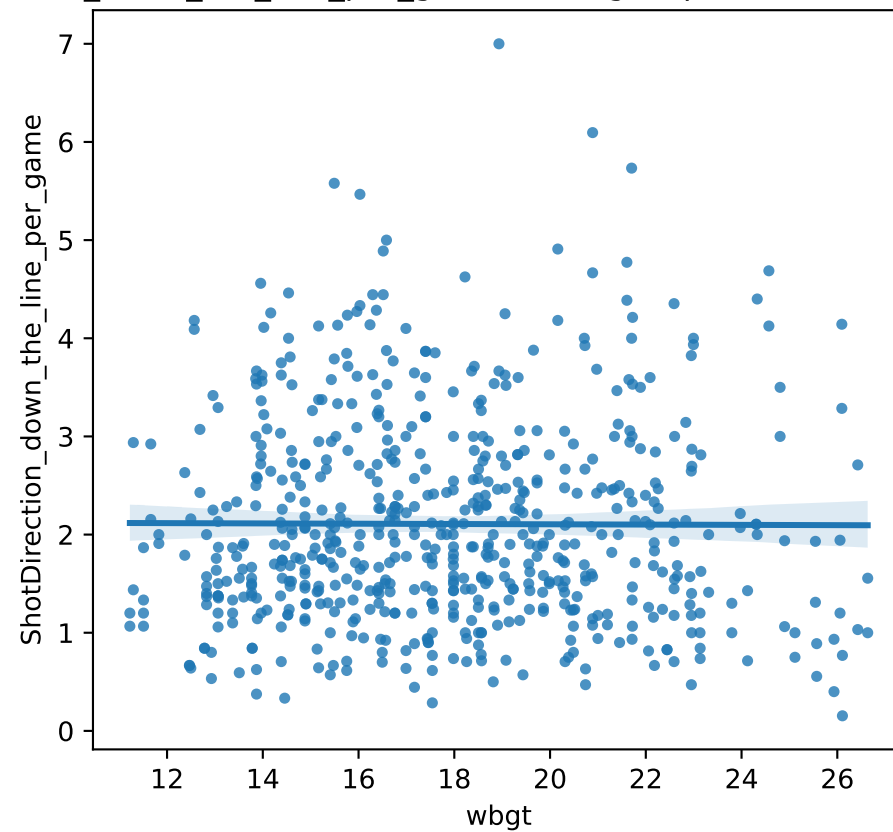
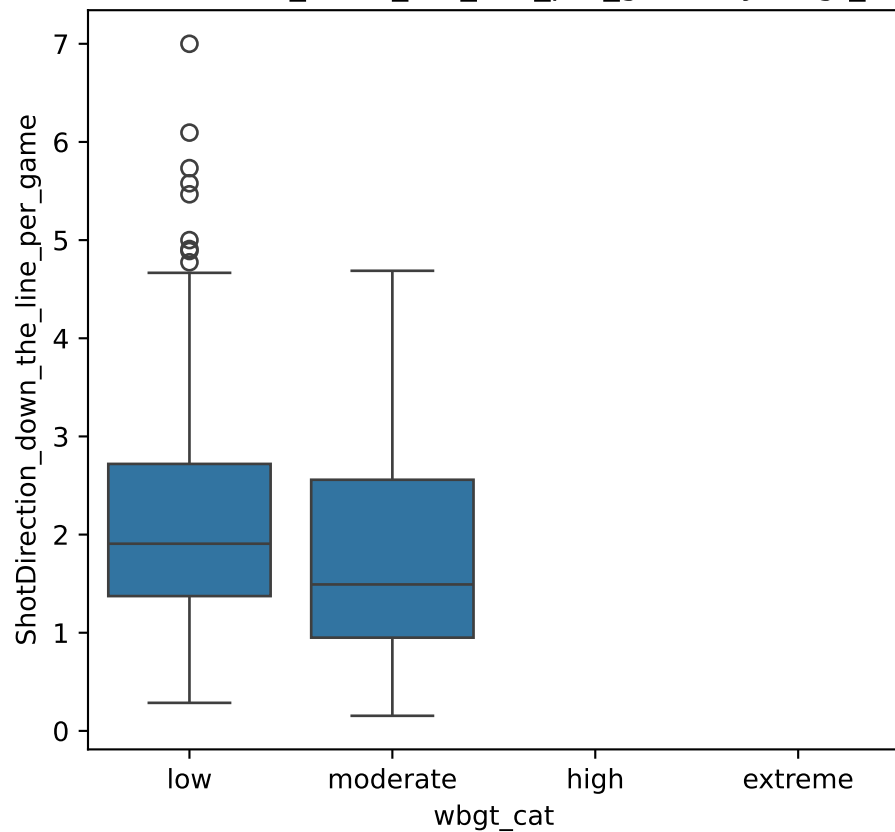


Dunn Post-hoc (p-değerleri)  
ShotDirection\_down\_middle\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.92  | 0.236    |
| high     | 1.0     | 1.0   | 0.545 | 0.131    |
| low      | 0.92    | 0.545 | 1.0   | 0.79     |
| moderate | 0.236   | 0.131 | 0.79  | 1.0      |

ShotDirection\_down\_the\_line\_per\_game - wbgt\_cat  
Kruskal p=0.0871, Jonckheere p=NA, Corr p=0.8999325585999602

ShotDirection\_down\_the\_line\_per\_game by wbgt\_cat  
ShotDirection\_down\_the\_line\_per\_game vs wbgt (Spearman r=-0.01, p=0.900)

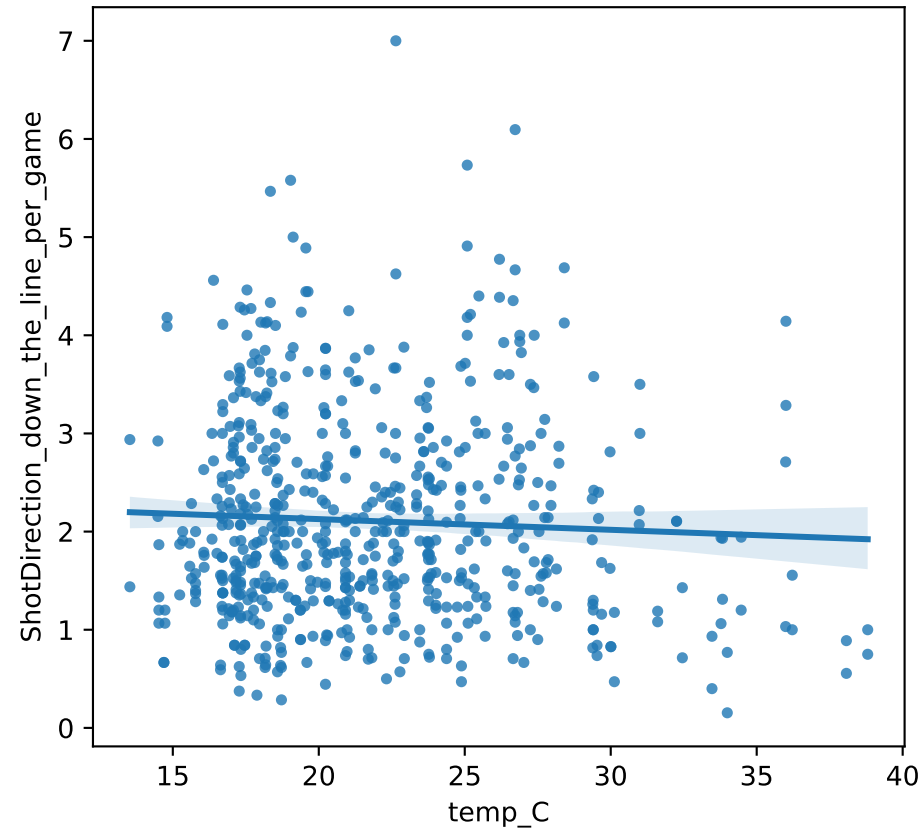
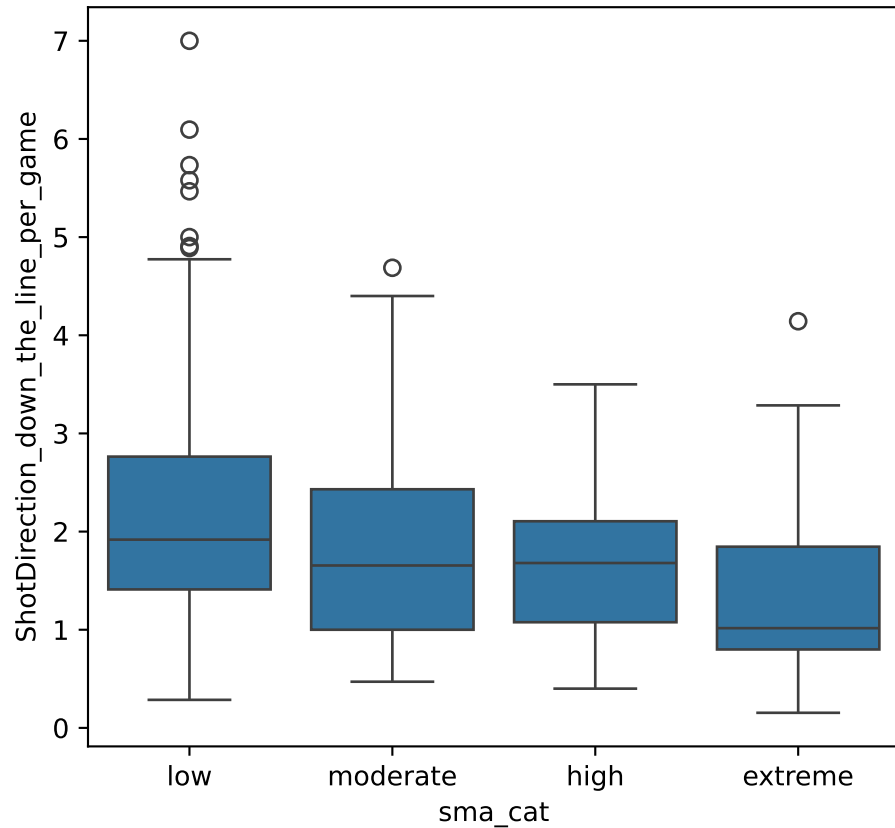


Dunn Post-hoc (p-değerleri)  
ShotDirection\_down\_the\_line\_per\_game by wbg\_t\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.087    |
| moderate | 0.087 | 1.0      |



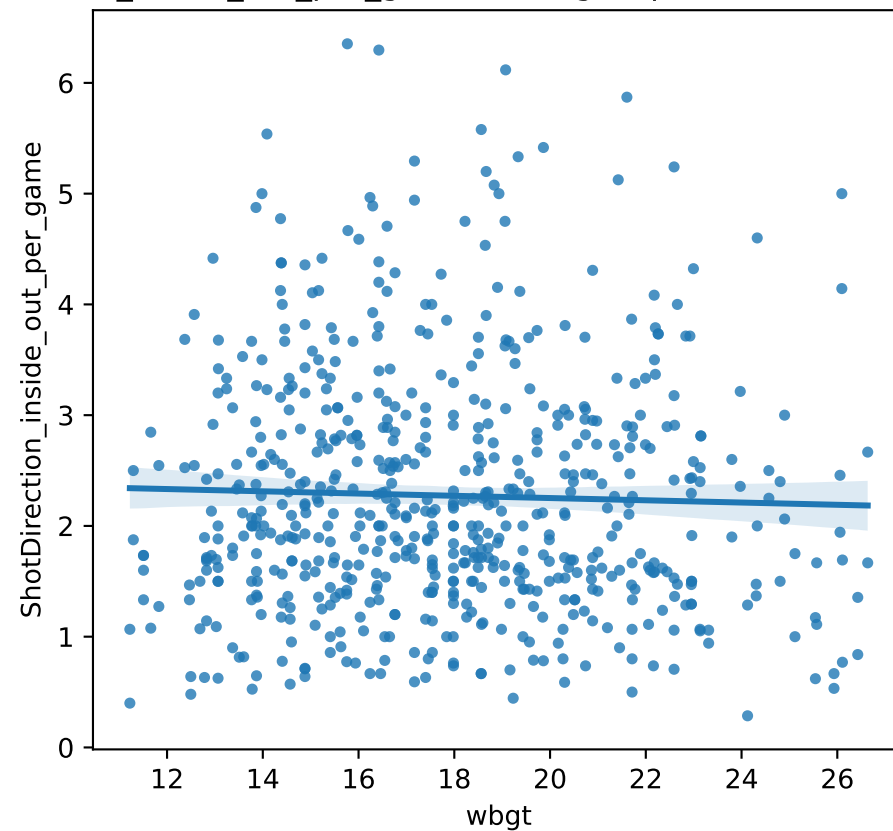
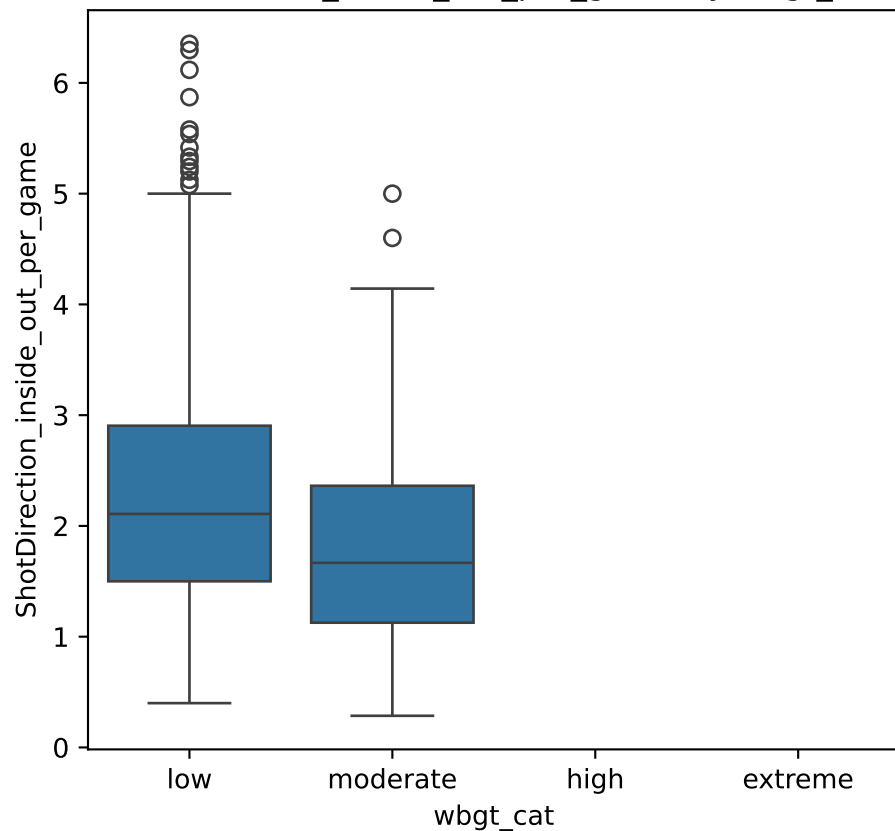
ShotDirection\_down\_the\_line\_per\_game - sma\_cat  
Kruskal p=0.00645, Jonckheere p=NA, Corr p=0.584693257953967  
ShotDirection\_down\_the\_line\_per\_game by sma\_cat  
ShotDirection\_down\_the\_line\_per\_game vs temp\_C (Spearman r=-0.02, p=0.585)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_down\_the\_line\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.042 | 1.0      |
| high     | 1.0     | 1.0   | 0.518 | 1.0      |
| low      | 0.042   | 0.518 | 1.0   | 0.566    |
| moderate | 1.0     | 1.0   | 0.566 | 1.0      |

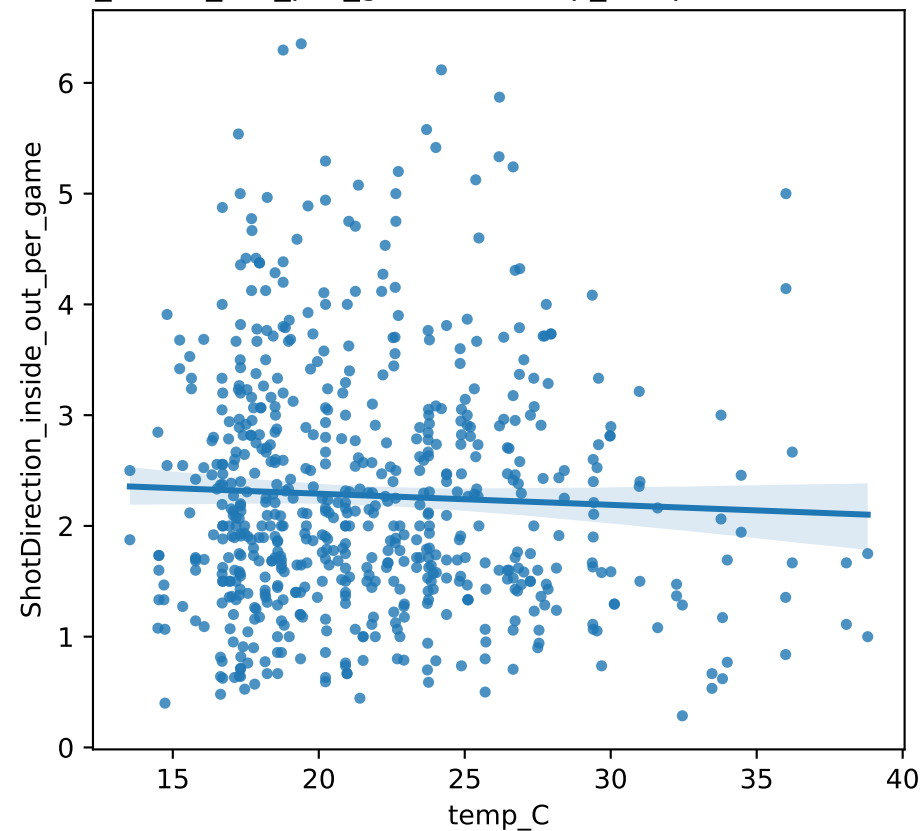
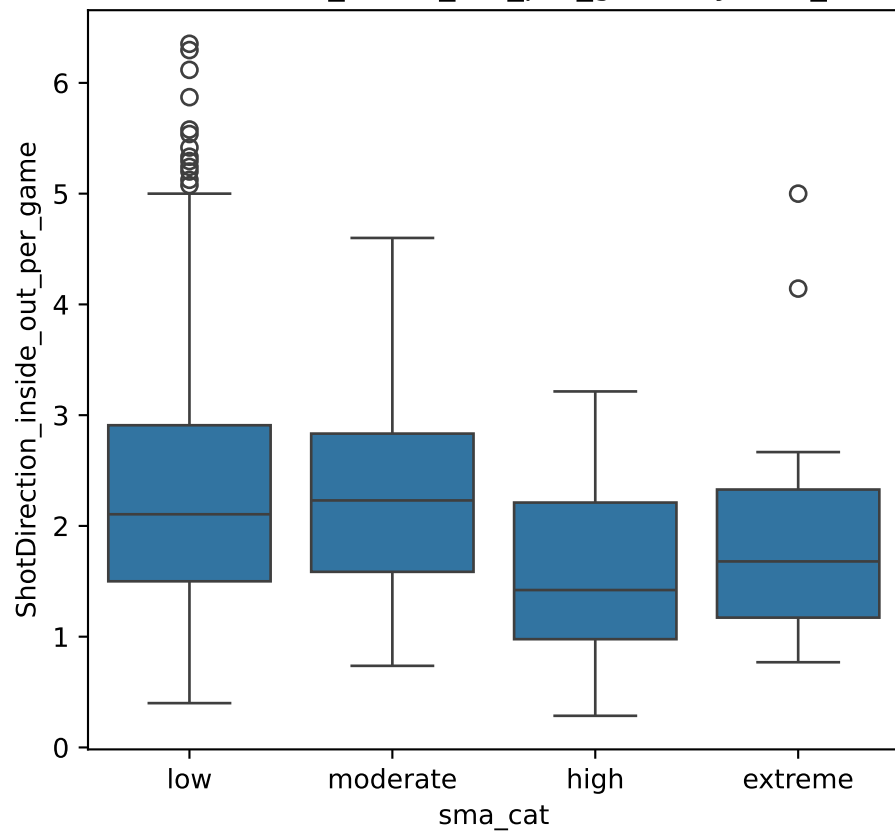
ShotDirection\_inside\_out\_per\_game - wbgc\_cat  
Kruskal p=0.0131, Jonckheere p=NA, Corr p=0.38194238820656834  
ShotDirection\_inside\_out\_per\_game by wbgc\_cat  
ShotDirection\_inside\_out\_per\_game vs wbgc (Spearman r=-0.03, p=0.382)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_inside\_out\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.013    |
| moderate | 0.013 | 1.0      |

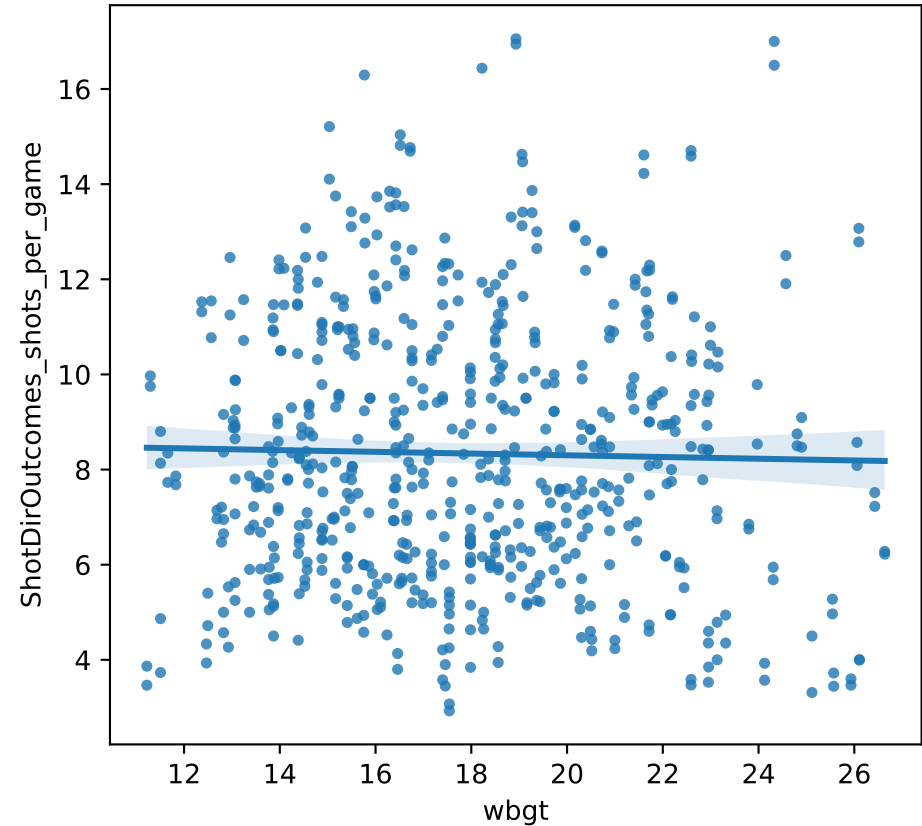
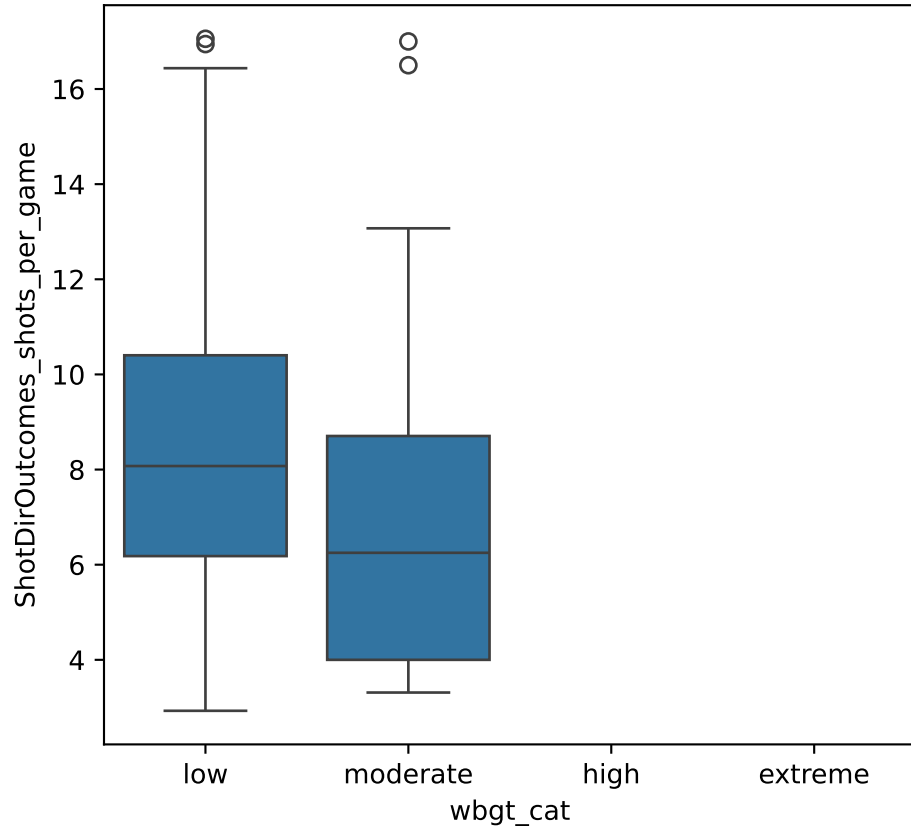
ShotDirection\_inside\_out\_per\_game - sma\_cat  
Kruskal p=0.0297, Jonckheere p=NA, Corr p=0.555589425956038  
ShotDirection\_inside\_out\_per\_game by sma\_cat ShotDirection\_inside\_out\_per\_game vs temp\_C (Spearman r=-0.02, p=0.556)



Dunn Post-hoc (p-değerleri)  
ShotDirection\_inside\_out\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.047 | 0.093    |
| low      | 1.0     | 0.047 | 1.0   | 1.0      |
| moderate | 1.0     | 0.093 | 1.0   | 1.0      |

ShotDirOutcomes\_shots\_per\_game - wbgt\_cat  
Kruskal p=0.0182, Jonckheere p=NA, Corr p=0.6929567862662407  
ShotDirOutcomes\_shots\_per\_game by wbgt\_cat ShotDirOutcomes\_shots\_per\_game vs wbgt (Spearman r=-0.02, p=0.693)

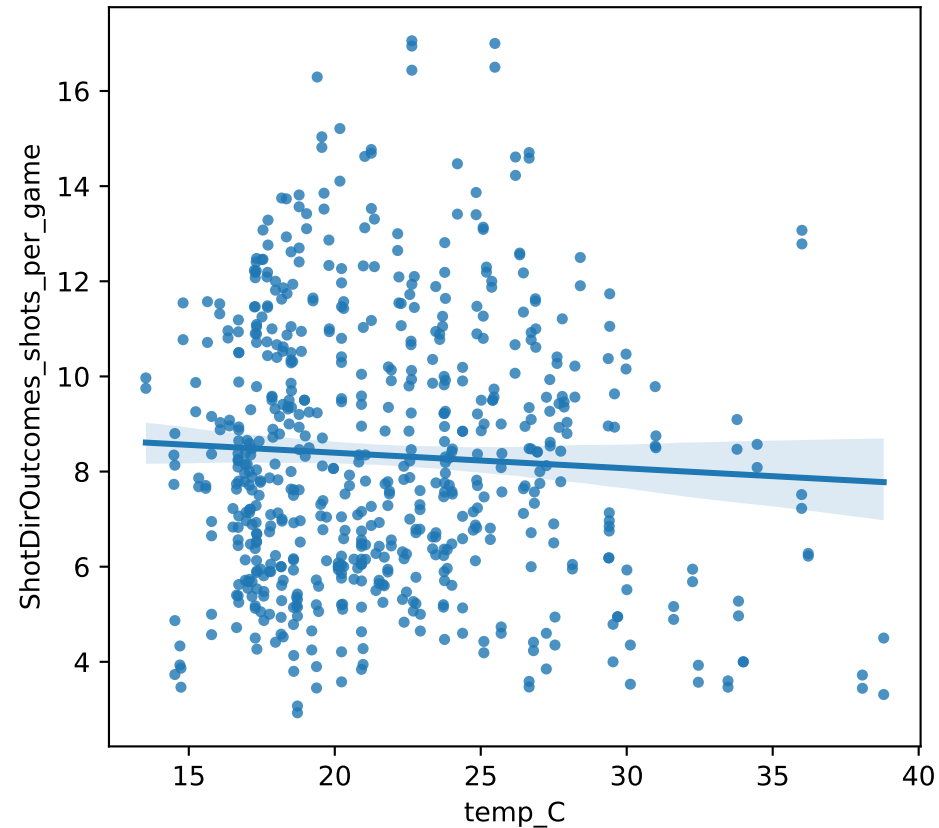
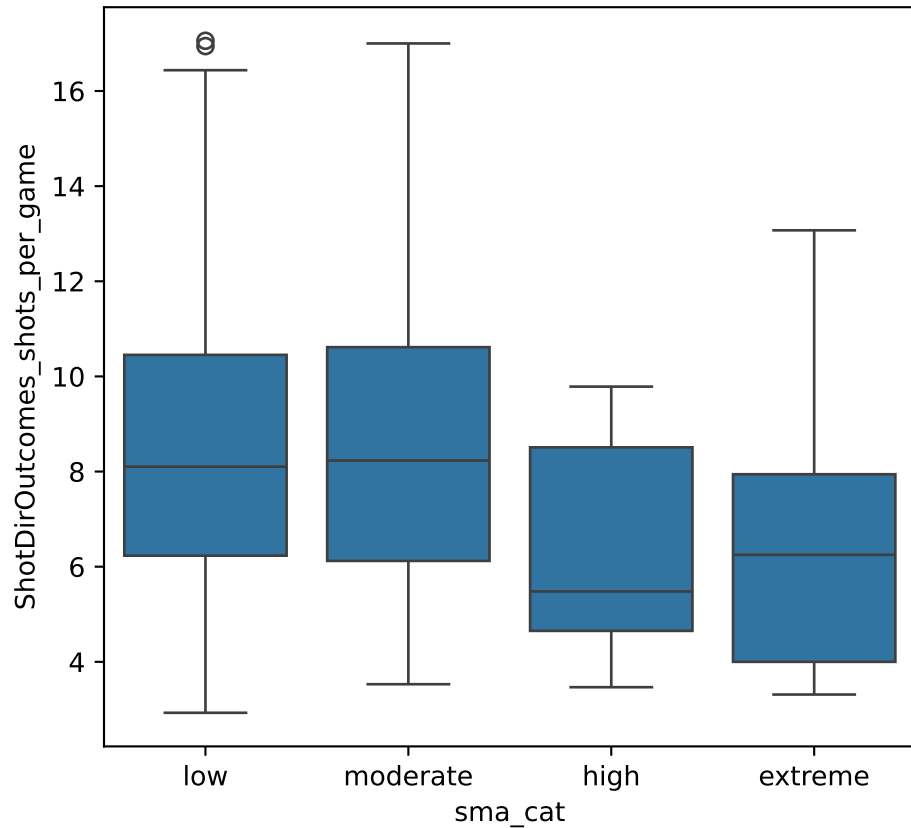


Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.018    |
| moderate | 0.018 | 1.0      |



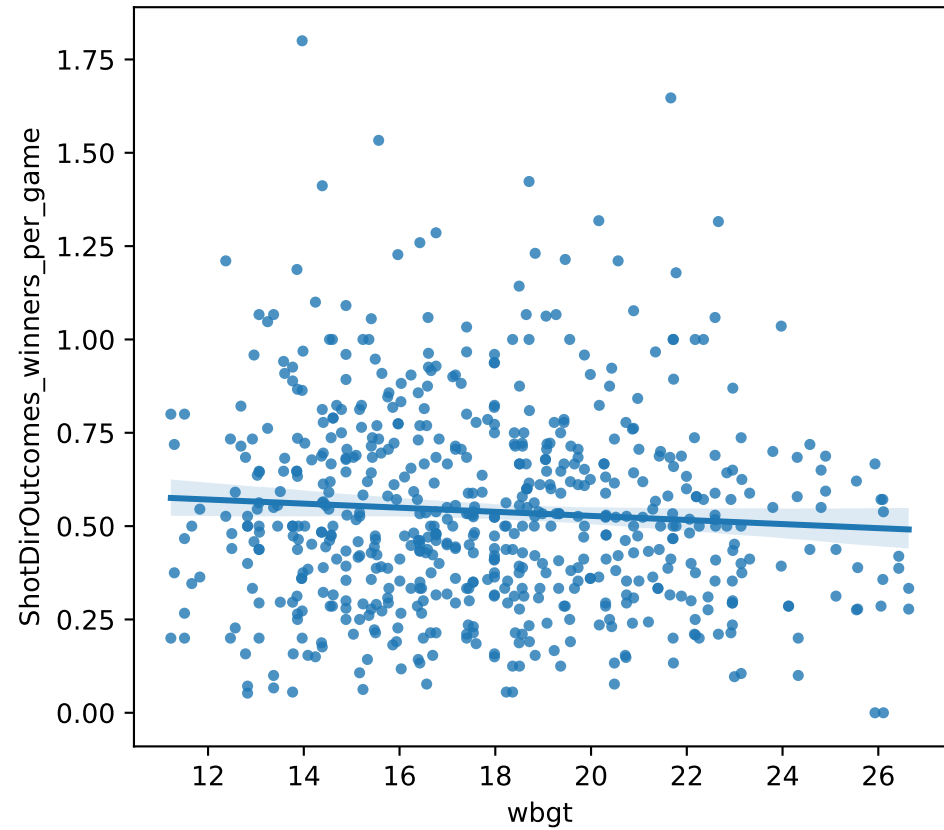
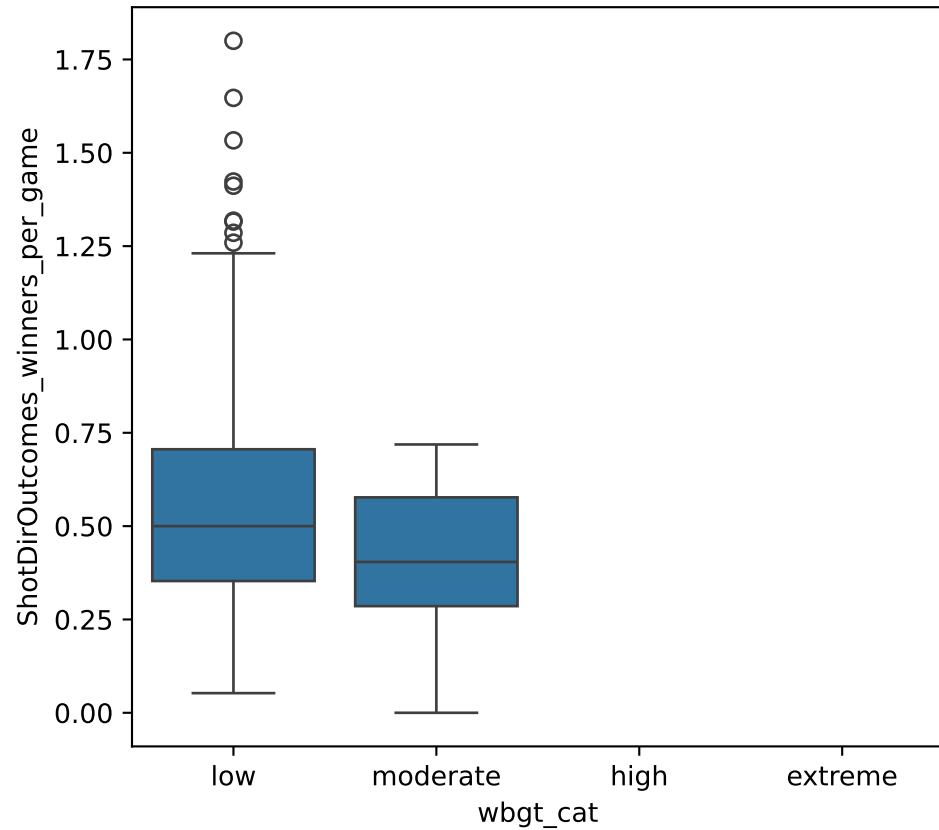
ShotDirOutcomes\_shots\_per\_game - sma\_cat  
Kruskal p=0.00184, Jonckheere p=NA, Corr p=0.8311202985894722  
ShotDirOutcomes\_shots\_per\_game by sma\_cat  
ShotDirOutcomes\_shots\_per\_game vs temp\_C (Spearman r=-0.01, p=0.831)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.094 | 0.234    |
| high     | 1.0     | 1.0   | 0.013 | 0.061    |
| low      | 0.094   | 0.013 | 1.0   | 1.0      |
| moderate | 0.234   | 0.061 | 1.0   | 1.0      |

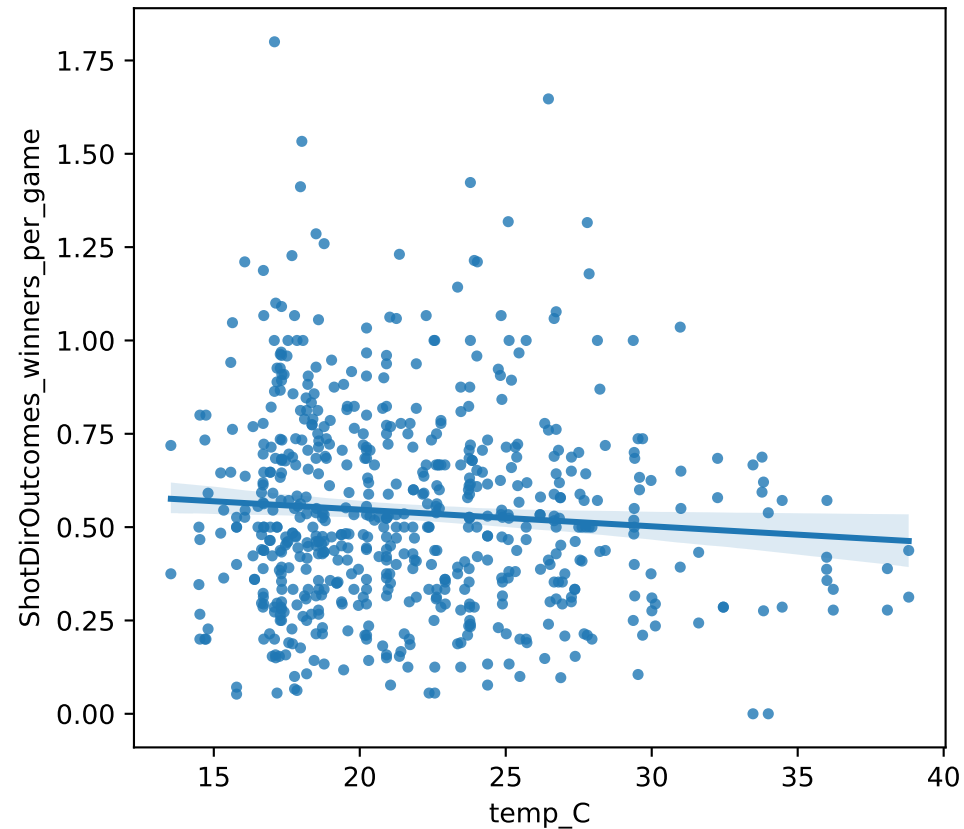
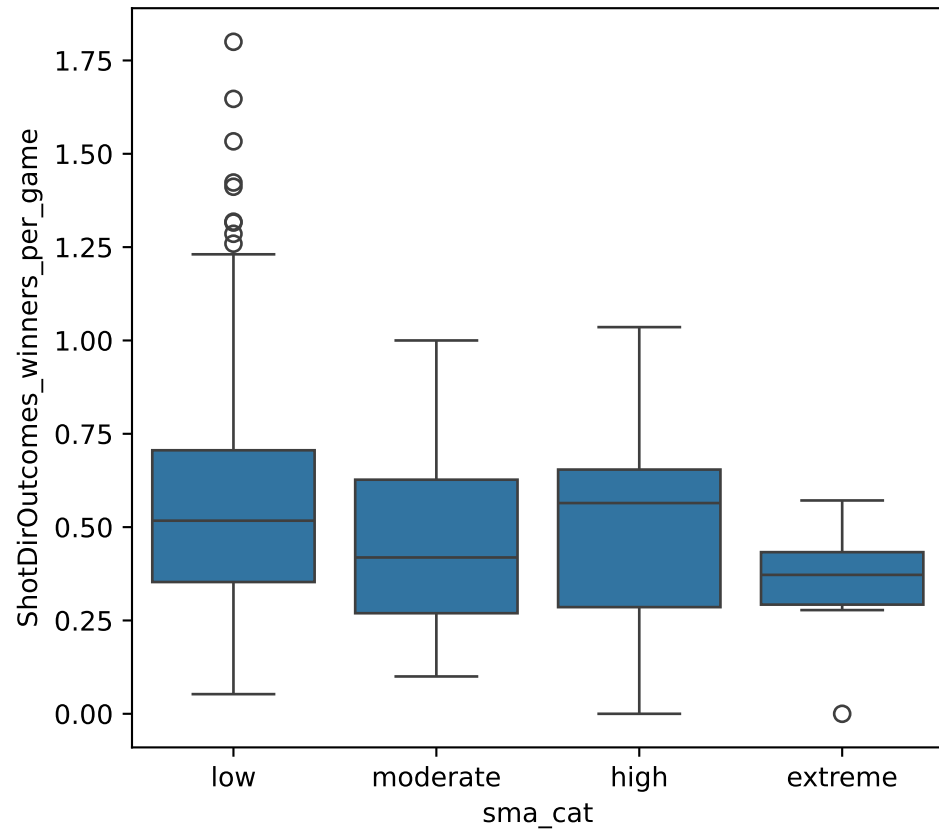
ShotDirOutcomes\_winners\_per\_game - wbgt\_cat  
Kruskal p=0.0195, Jonckheere p=NA, Corr p=0.1528397598112069  
ShotDirOutcomes\_winners\_per\_game by wbgt\_cat ShotDirOutcomes\_winners\_per\_game vs wbgt (Spearman r=-0.06, p=0.153)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_winners\_per\_game by wbgt\_cat

|          | low  | moderate |
|----------|------|----------|
| low      | 1.0  | 0.02     |
| moderate | 0.02 | 1.0      |

ShotDirOutcomes\_winners\_per\_game - sma\_cat  
Kruskal p=0.0153, Jonckheere p=NA, Corr p=0.18656110385800595  
ShotDirOutcomes\_winners\_per\_game by sma\_cat  
ShotDirOutcomes\_winners\_per\_game vs temp\_C (Spearman r=-0.05, p=0.187)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_winners\_per\_game by sma\_cat

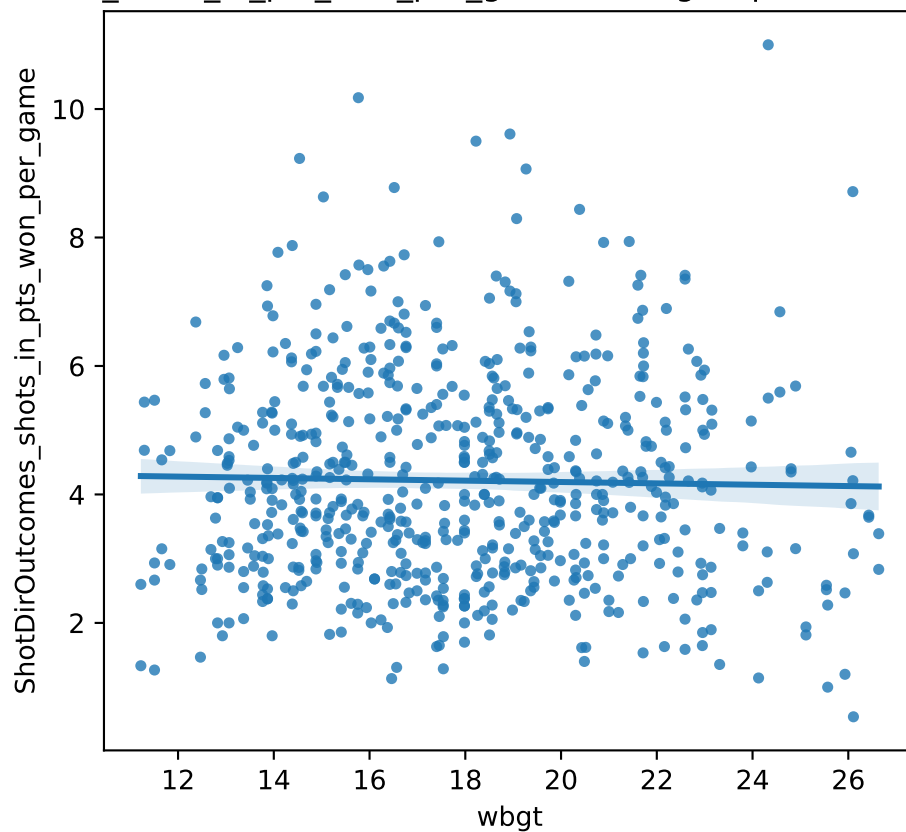
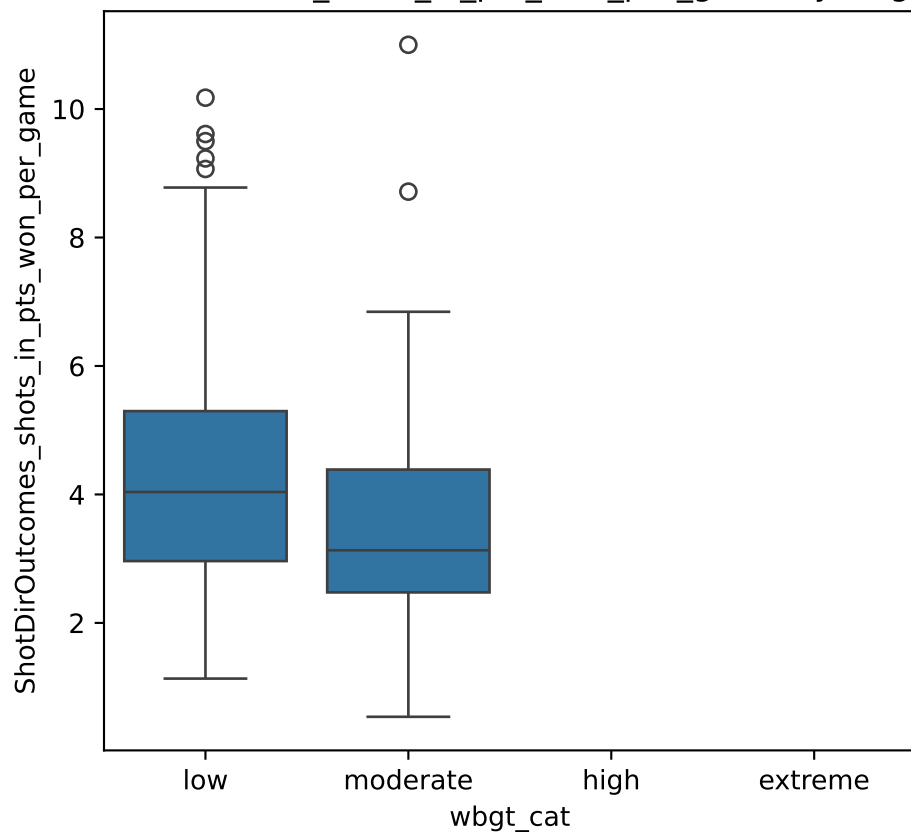
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.657 | 0.054 | 1.0      |
| high     | 0.657   | 1.0   | 1.0   | 1.0      |
| low      | 0.054   | 1.0   | 1.0   | 0.303    |
| moderate | 1.0     | 1.0   | 0.303 | 1.0      |

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game - wbgt\_cat

Kruskal p=0.0175, Jonckheere p=NA, Corr p=0.670640541206297

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game by wbgt\_cat

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game vs wbgt (Spearman  $r=-0.02$ ,  $p=0.6$ )



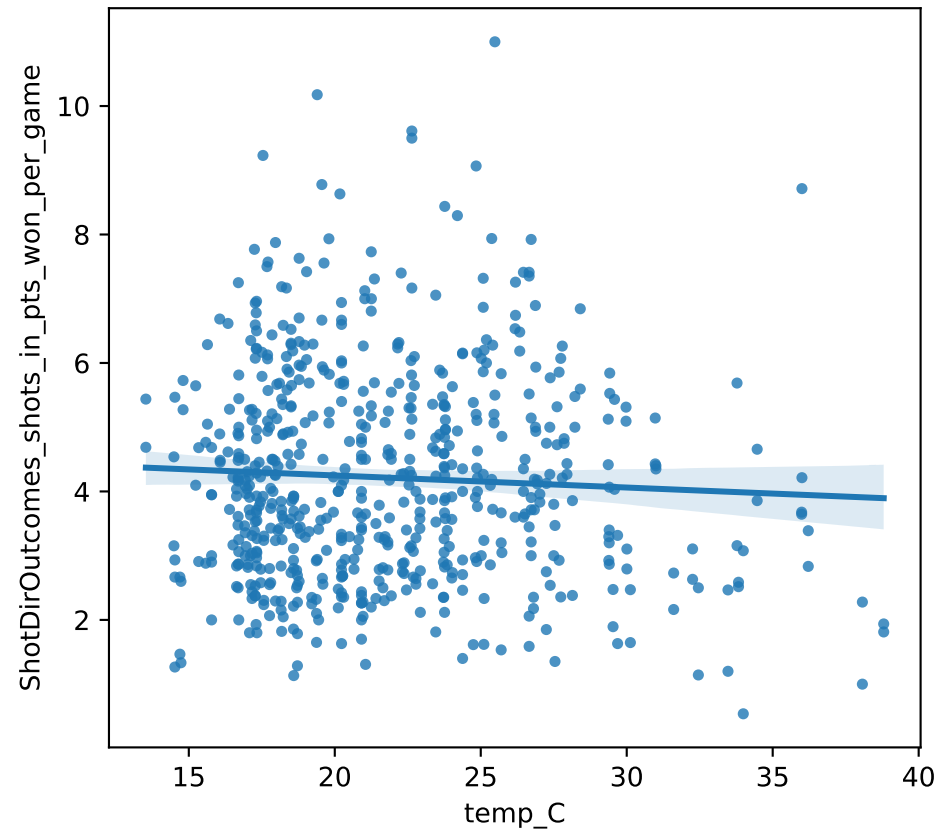
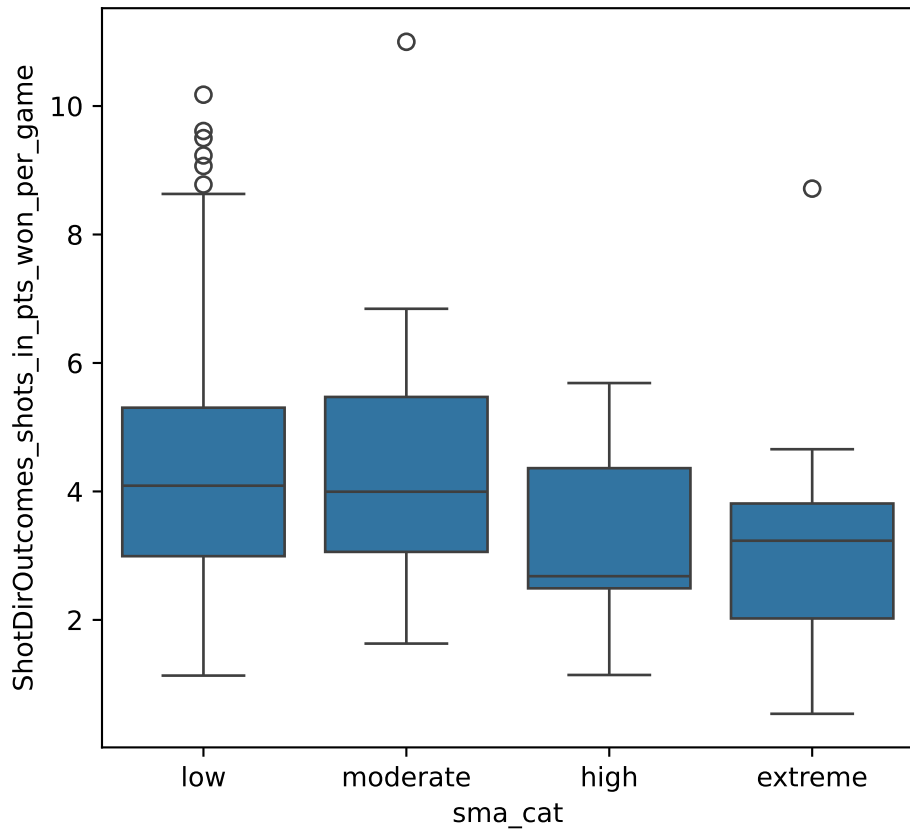
Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.017    |
| moderate | 0.017 | 1.0      |



Kruskal p=0.00423, Jonckheere p=NA, Corr p=0.7403688891059481

ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game by sma\_cat

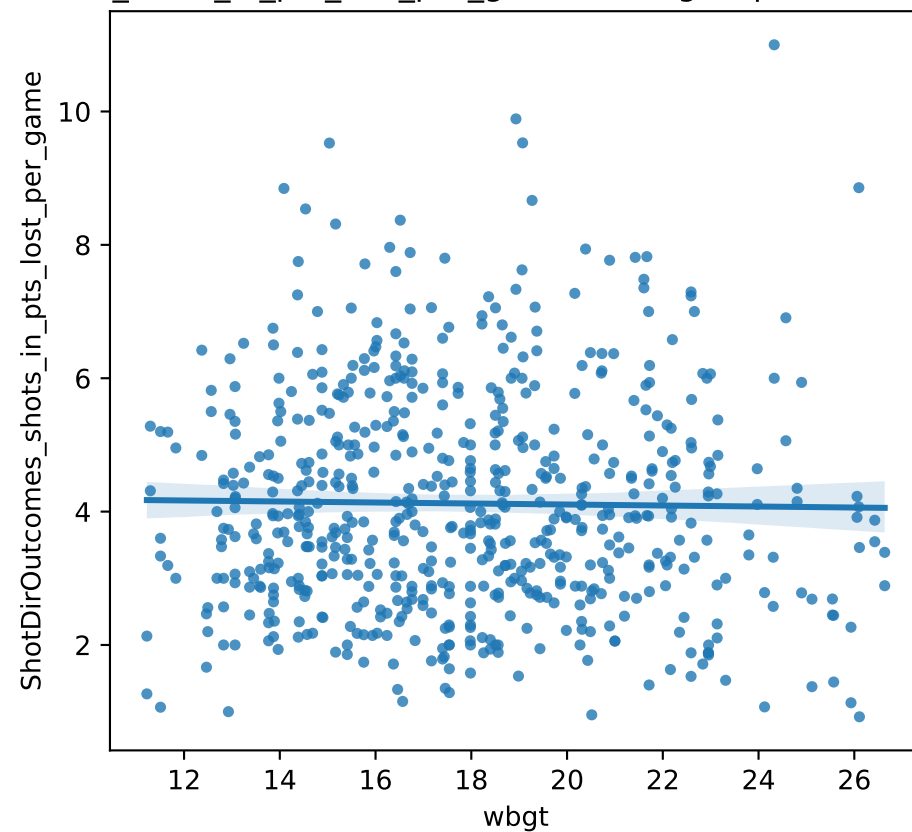
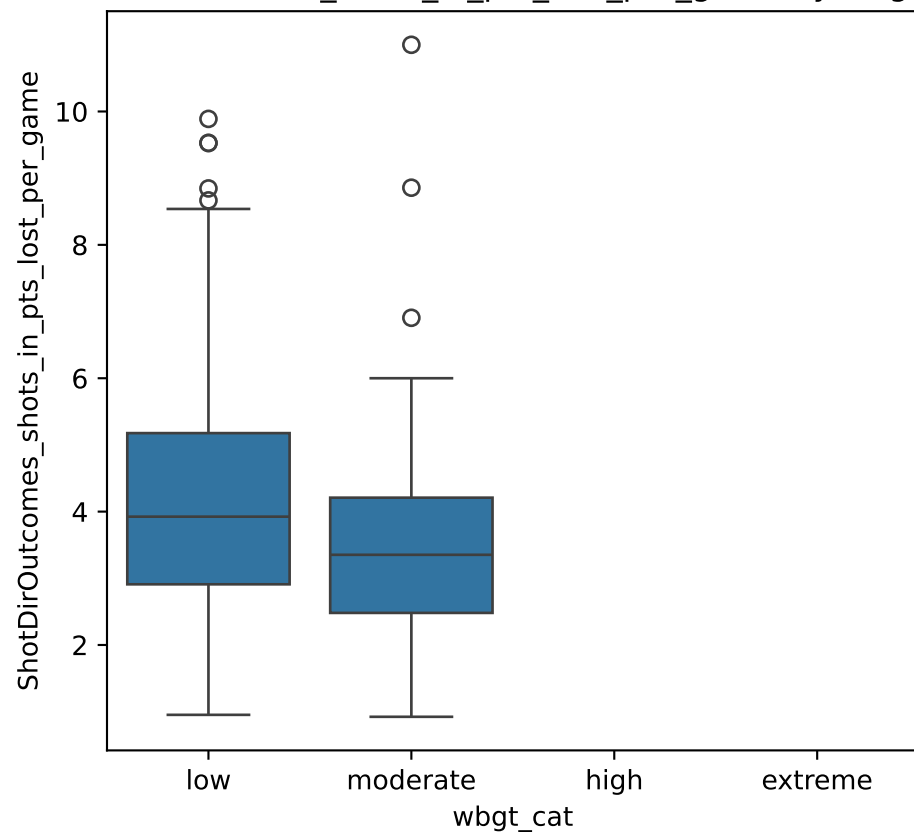
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.096 | 0.274    |
| high     | 1.0     | 1.0   | 0.033 | 0.142    |
| low      | 0.096   | 0.033 | 1.0   | 1.0      |
| moderate | 0.274   | 0.142 | 1.0   | 1.0      |

ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game - wbgc\_cat

Kruskal p=0.0448, Jonckheere p=NA, Corr p=0.6409653462783897

ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game by wbgc\_cat

ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game vs wbgc (Spearman  $r=-0.02$ ,  $p=0.6$ )



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game by wbgc\_cat

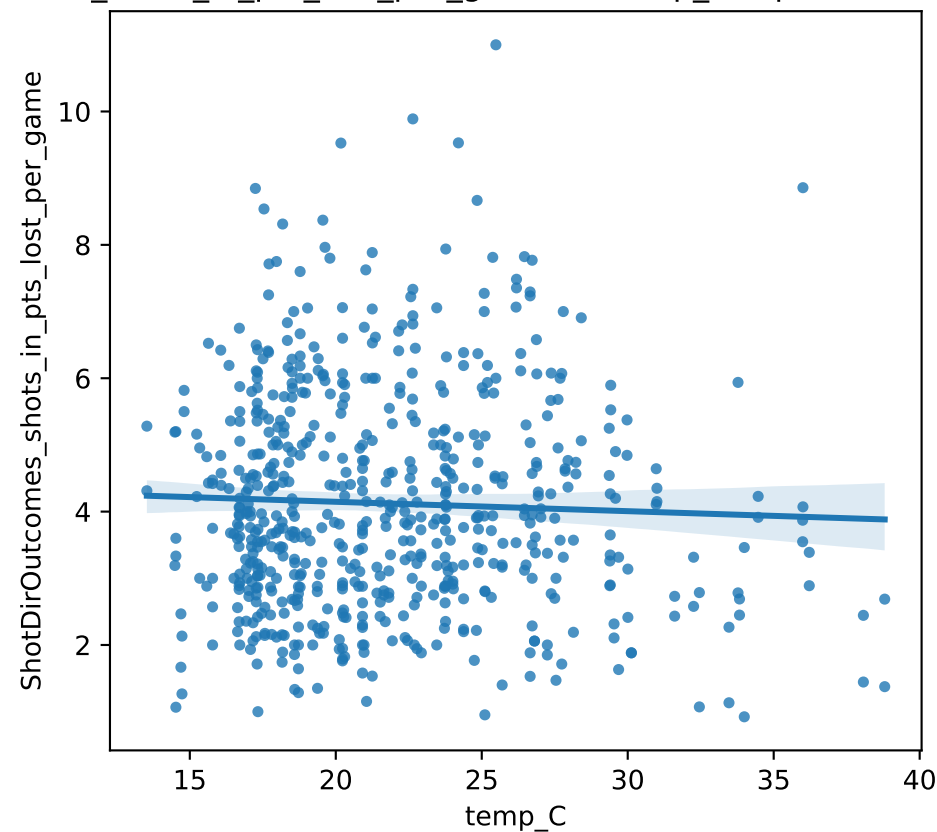
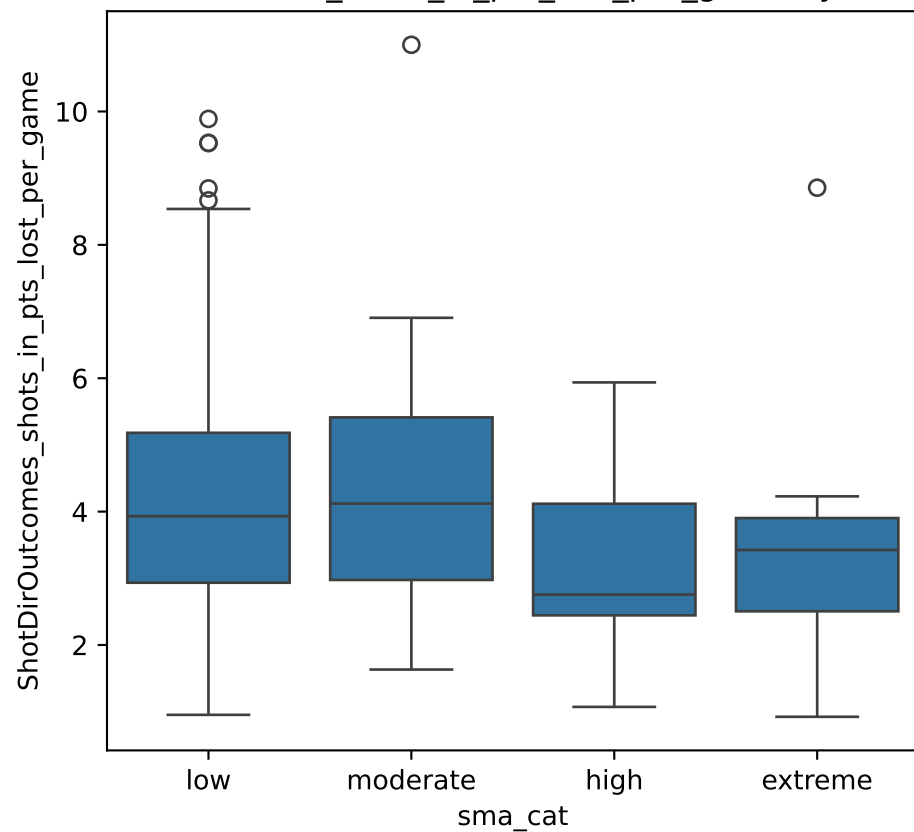
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.045    |
| moderate | 0.045 | 1.0      |

ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game - sma\_cat

Kruskal p=0.0121, Jonckheere p=NA, Corr p=0.8009377299105896

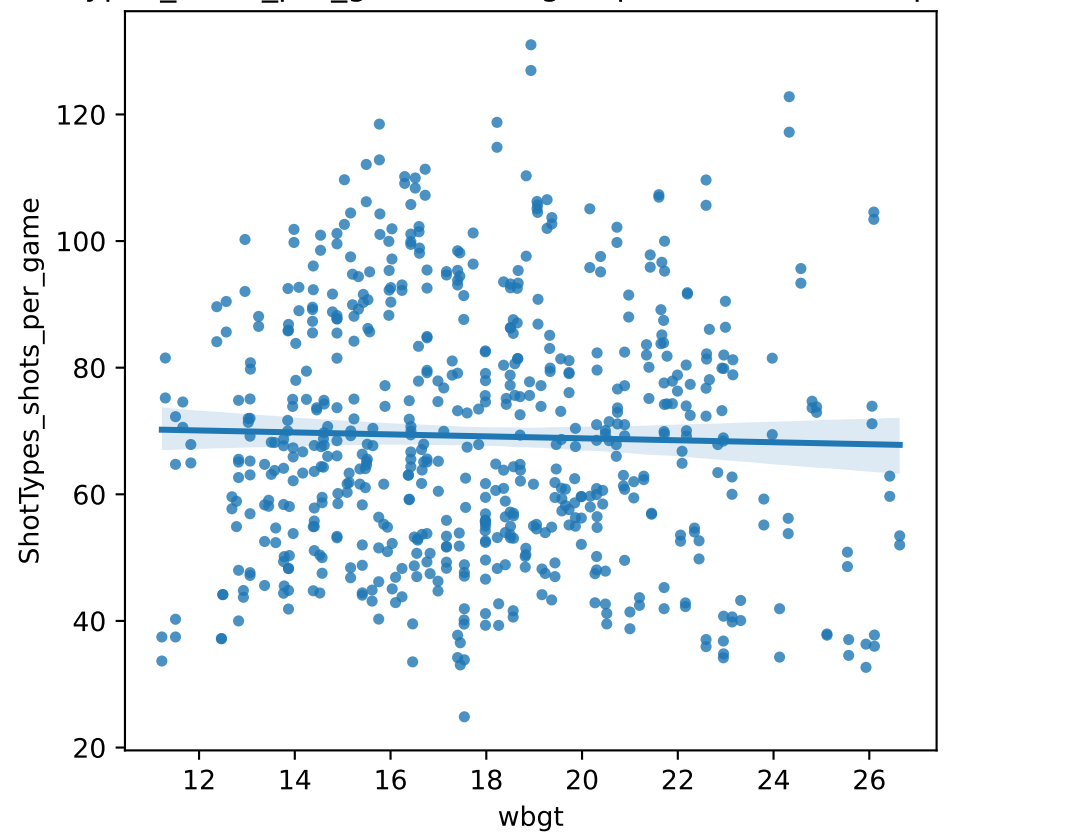
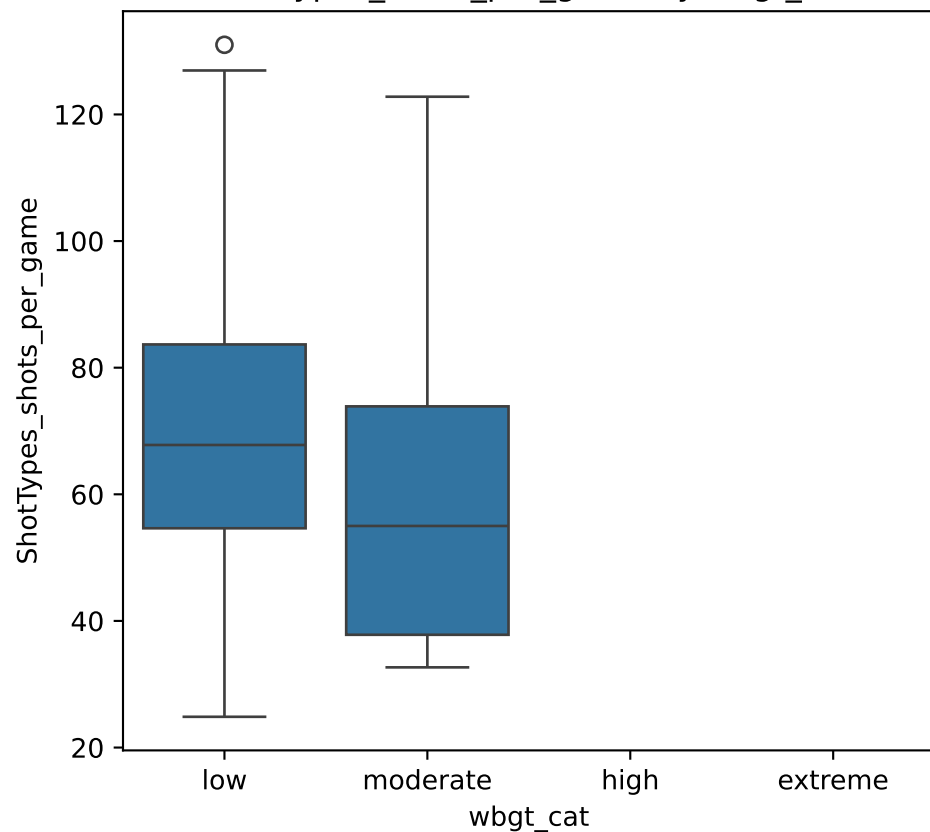
ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game vs sma\_cat

ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game vs temp\_C (Spearman r=-0.01, p=0.9999999999999999)



Dunn Post-hoc (p-değerleri)  
ShotDirOutcomes\_shots\_in\_pts\_lost\_per\_game by sma\_cat

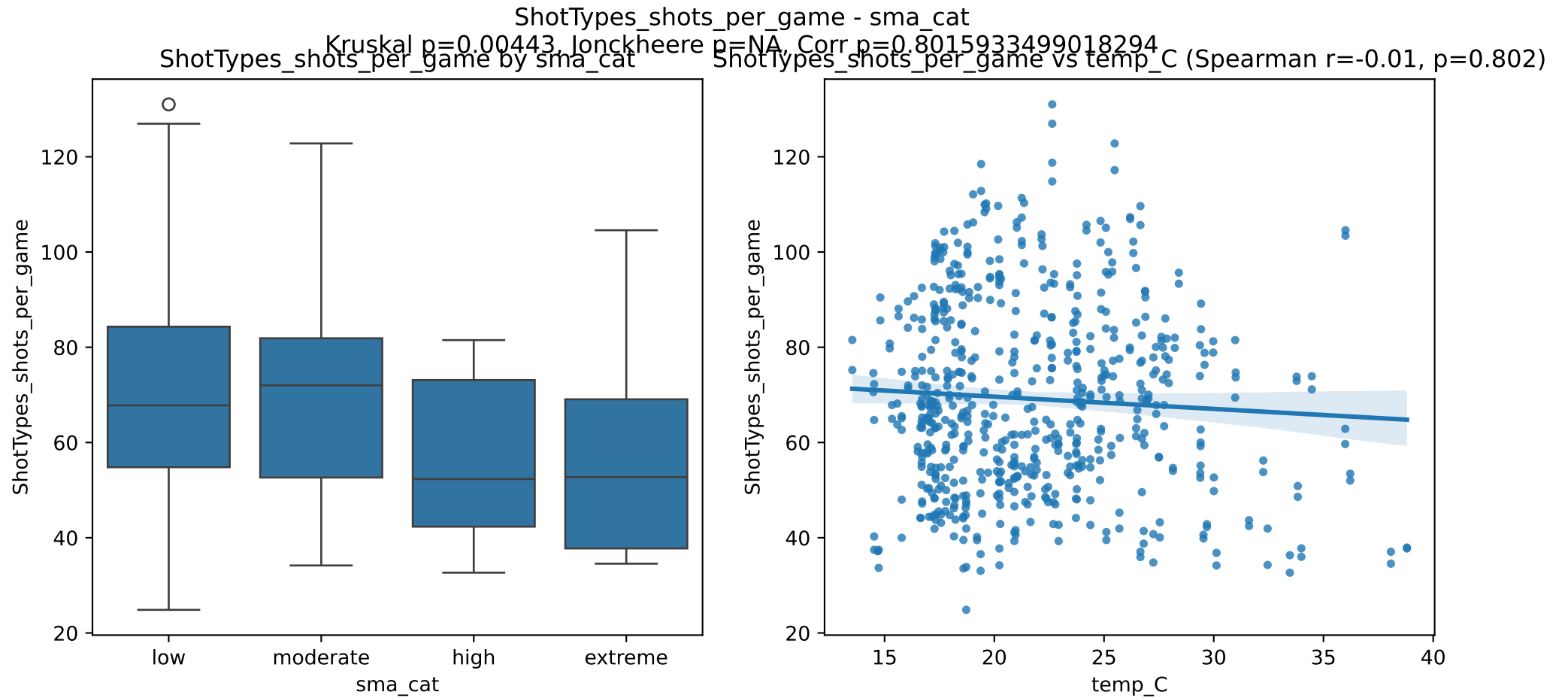
|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 0.269 | 0.379    |
| high     | 1.0     | 1.0  | 0.05  | 0.11     |
| low      | 0.269   | 0.05 | 1.0   | 1.0      |
| moderate | 0.379   | 0.11 | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_per\_game by wbgc\_cat

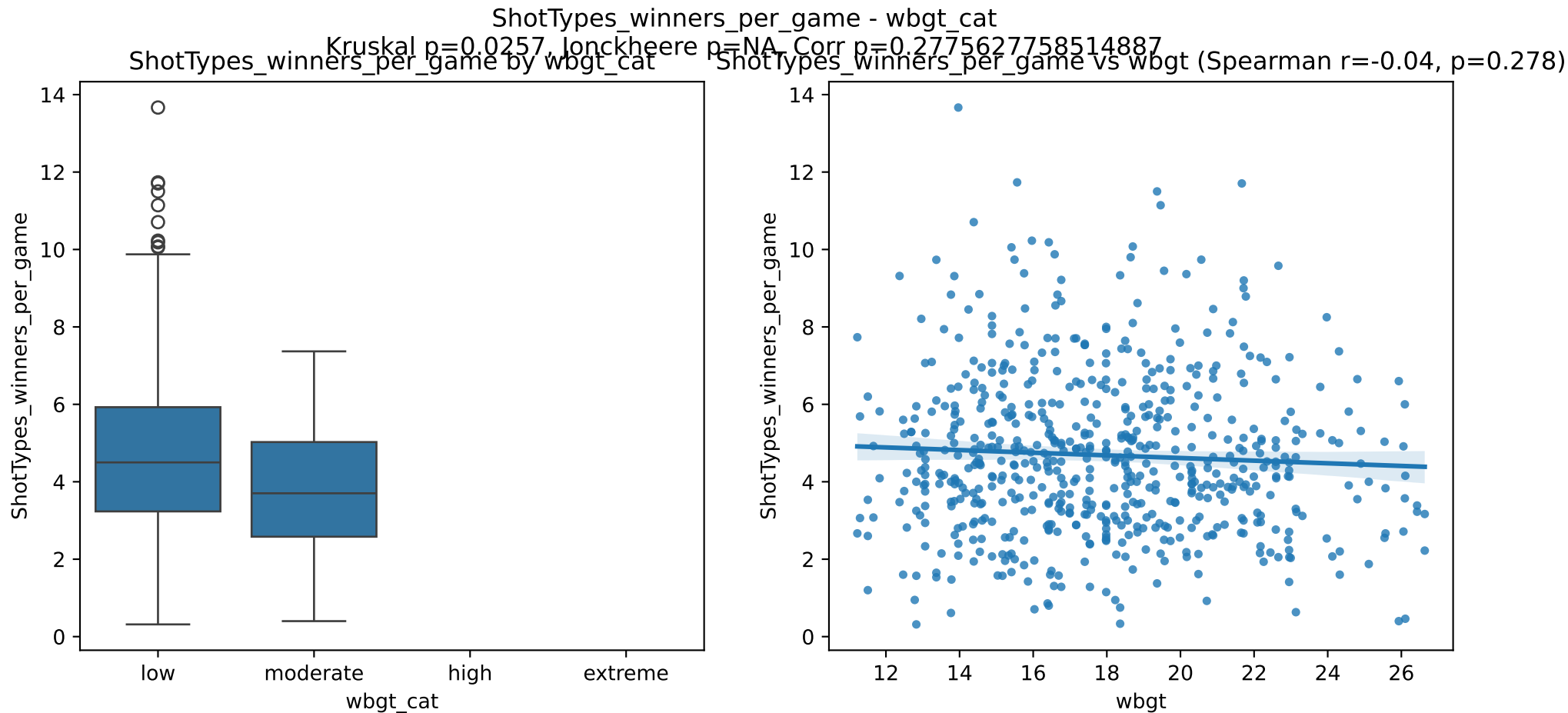
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.033    |
| moderate | 0.033 | 1.0      |





Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_per\_game by sma\_cat

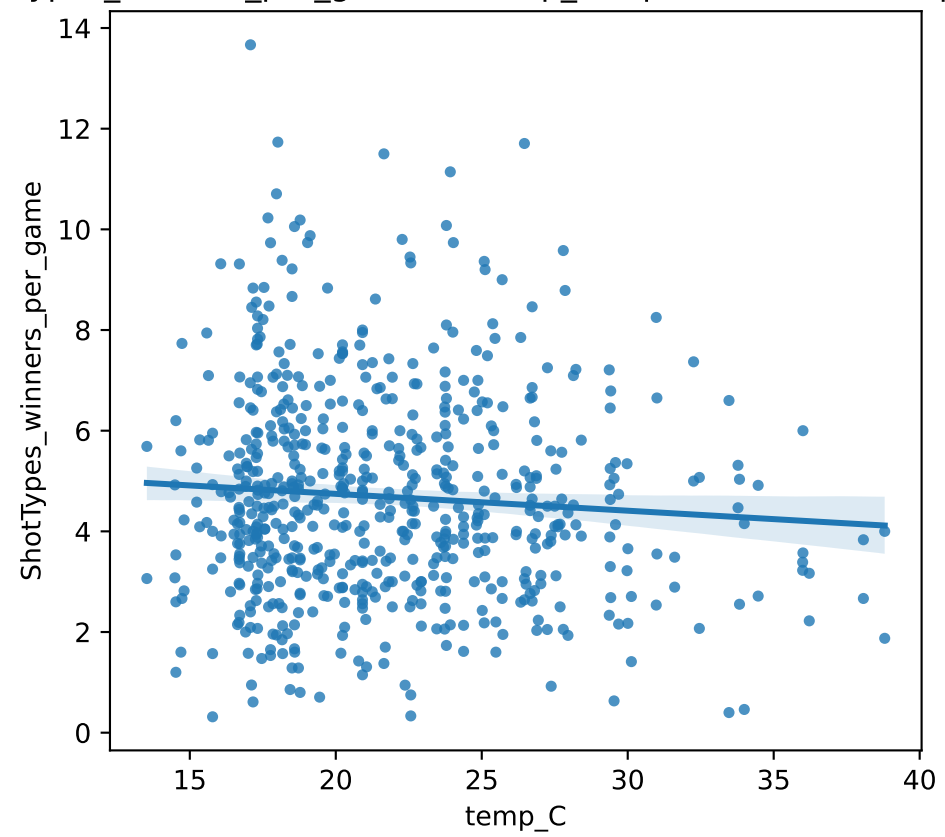
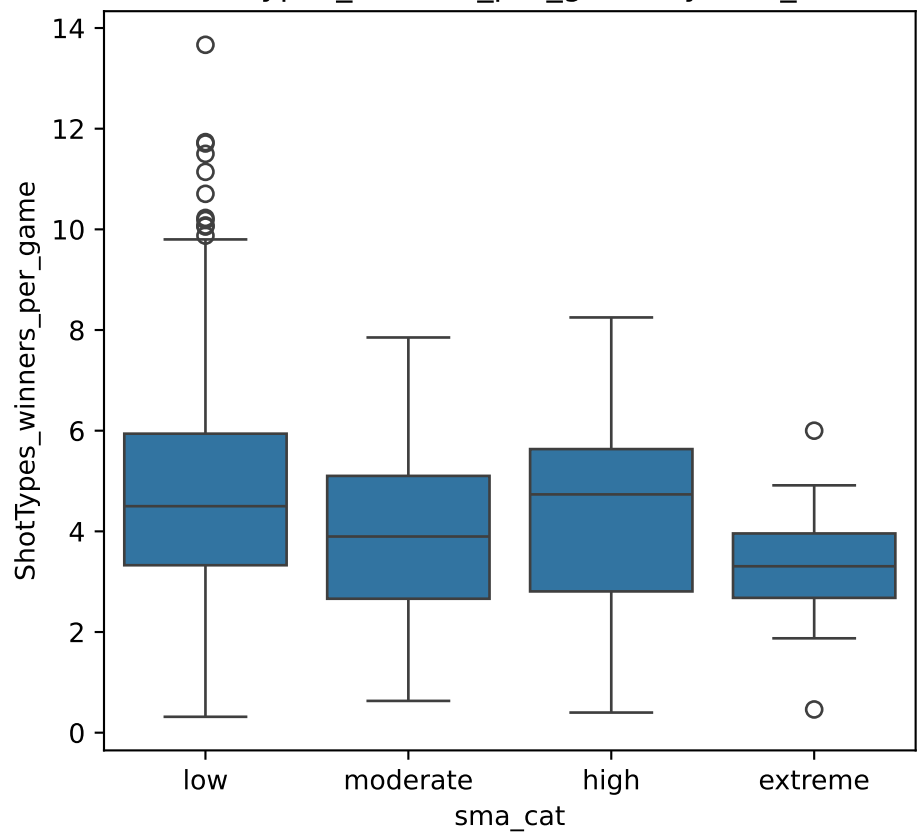
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.098 | 0.261    |
| high     | 1.0     | 1.0   | 0.034 | 0.136    |
| low      | 0.098   | 0.034 | 1.0   | 1.0      |
| moderate | 0.261   | 0.136 | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
ShotTypes\_winners\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.026    |
| moderate | 0.026 | 1.0      |

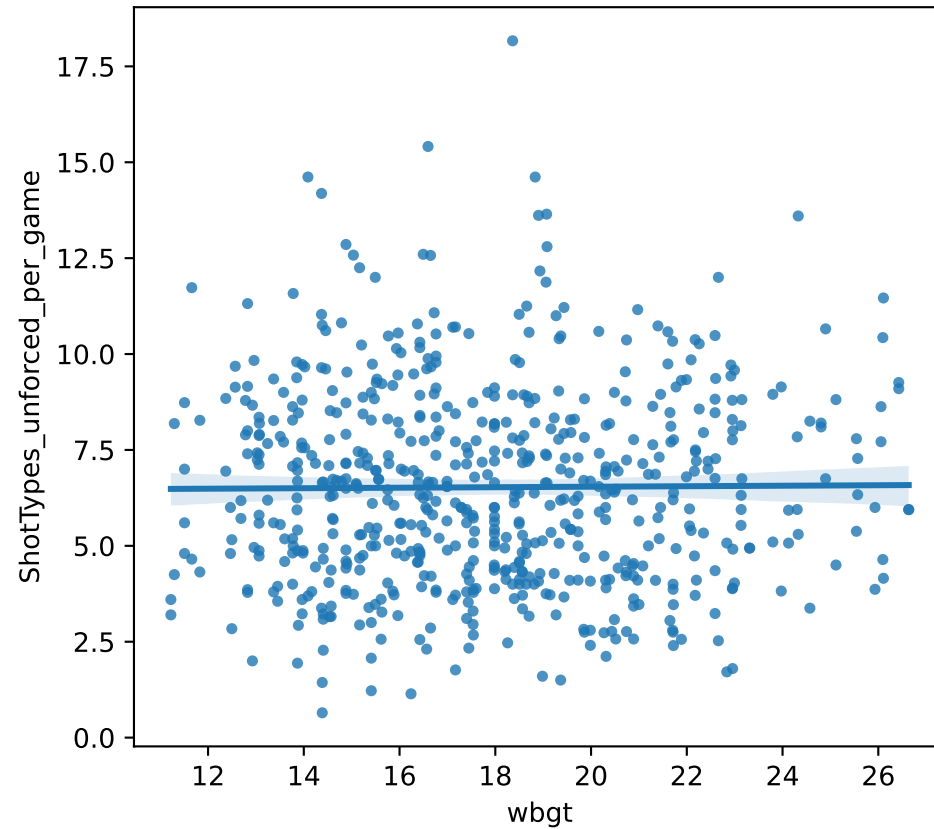
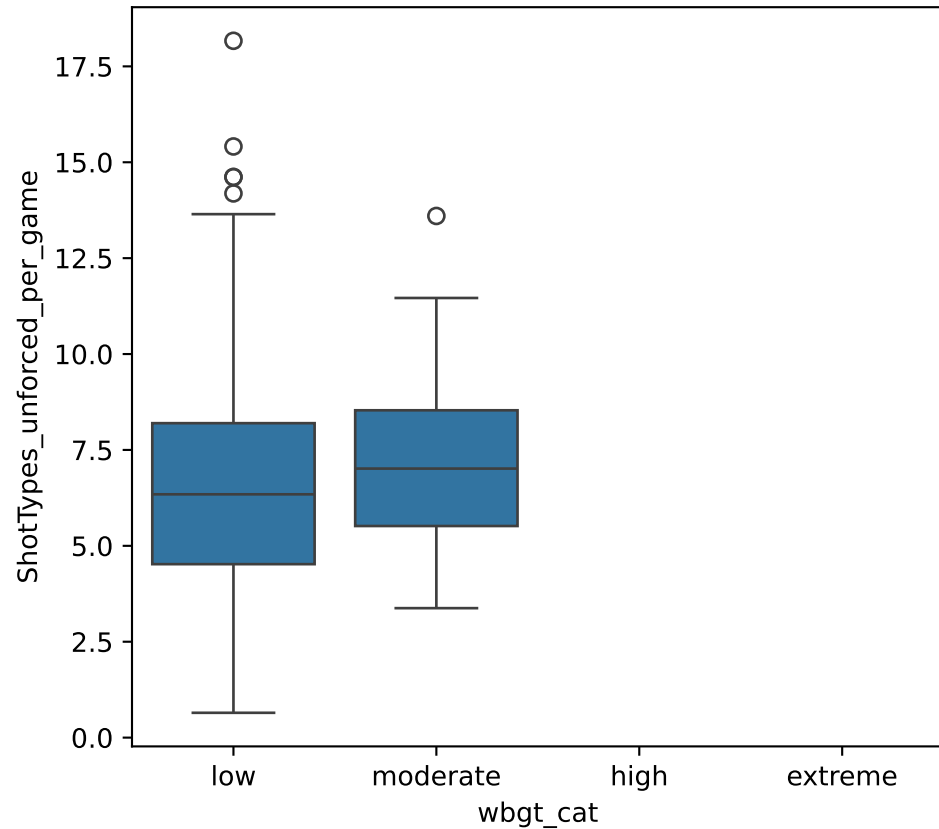
ShotTypes\_winners\_per\_game - sma\_cat  
Kruskal p=0.0111, Jonckheere p=NA, Corr p=0.27716926683880316  
ShotTypes\_winners\_per\_game by sma\_cat ShotTypes\_winners\_per\_game vs temp\_C (Spearman r=-0.04, p=0.277)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_winners\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.476 | 0.037 | 1.0      |
| high     | 0.476   | 1.0   | 1.0   | 1.0      |
| low      | 0.037   | 1.0   | 1.0   | 0.288    |
| moderate | 1.0     | 1.0   | 0.288 | 1.0      |

ShotTypes\_unforced\_per\_game - wbggt\_cat  
Kruskal p=0.128, Jonckheere p=NA, Corr p=0.9541497218834711  
ShotTypes\_unforced\_per\_game by wbggt\_cat ShotTypes\_unforced\_per\_game vs wbggt (Spearman r=-0.00, p=0.954)

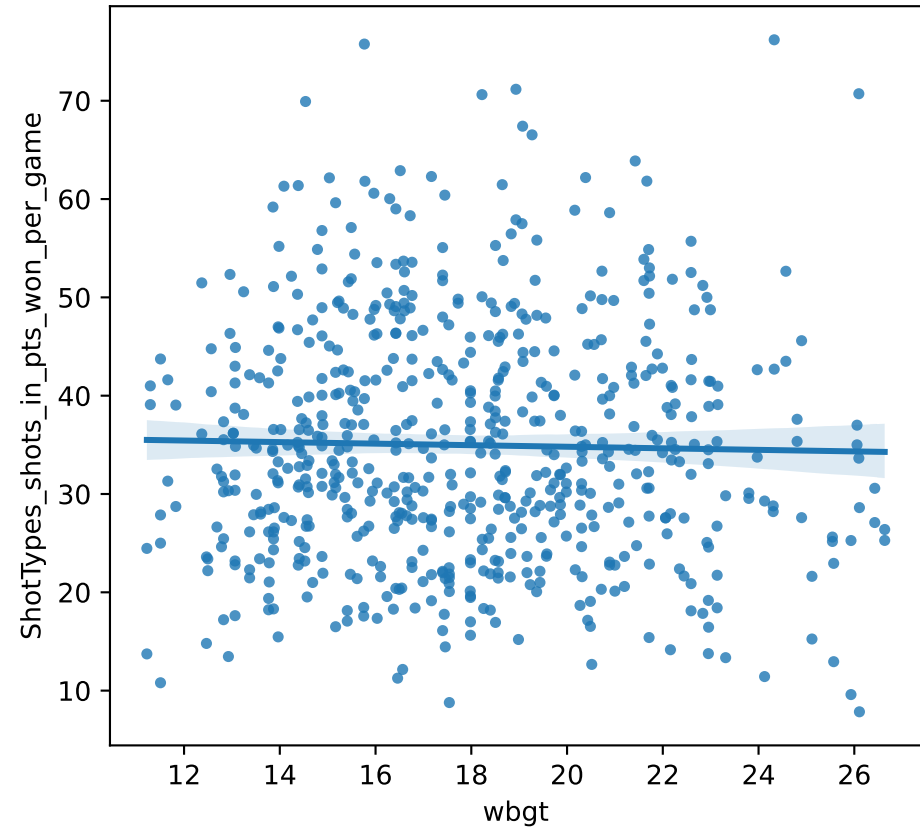
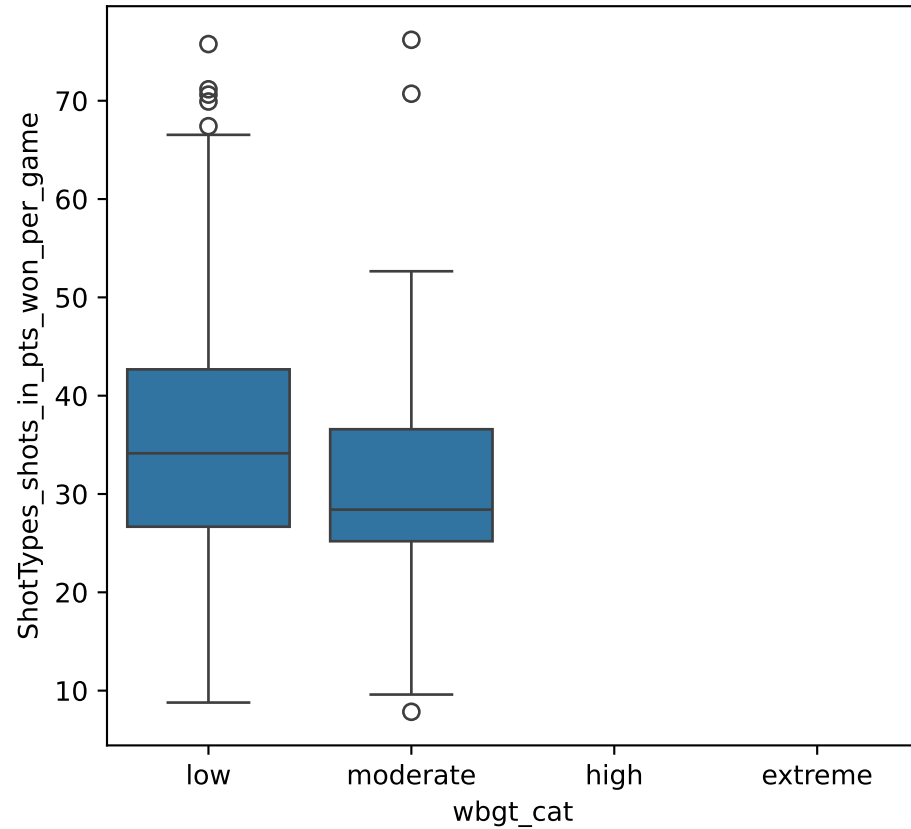


Dunn Post-hoc (p-değerleri)  
ShotTypes\_unforced\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.128    |
| moderate | 0.128 | 1.0      |



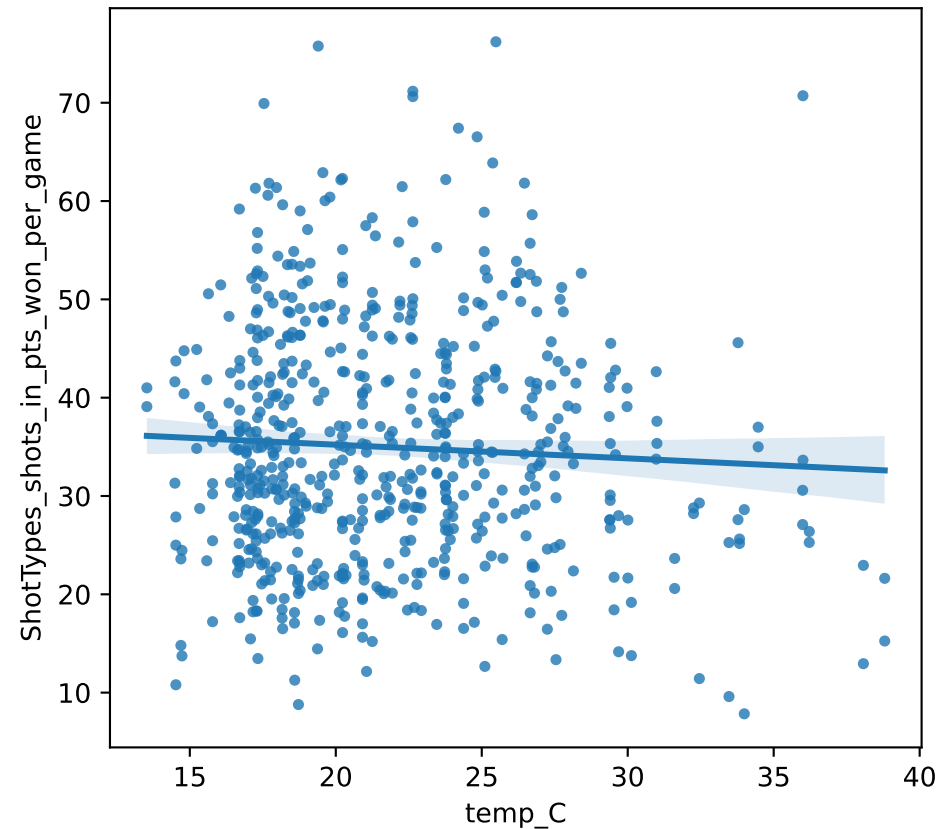
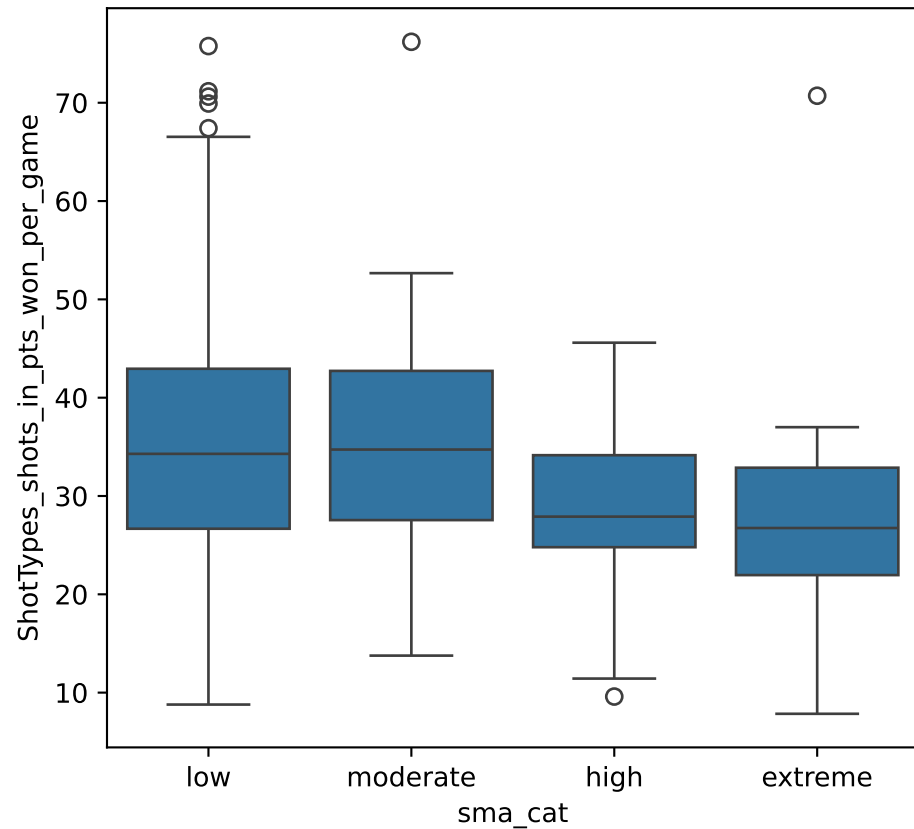
ShotTypes\_shots\_in\_pts\_won\_per\_game - wbgc\_cat  
 Kruskal p=0.0428, Jonckheere p=NA, Corr p=0.6871156153773952  
 ShotTypes\_shots\_in\_pts\_won\_per\_game by wbgc\_cat ShotTypes\_shots\_in\_pts\_won\_per\_game vs wbgc (Spearman r=-0.02, p=0.687)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_won\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.043    |
| moderate | 0.043 | 1.0      |

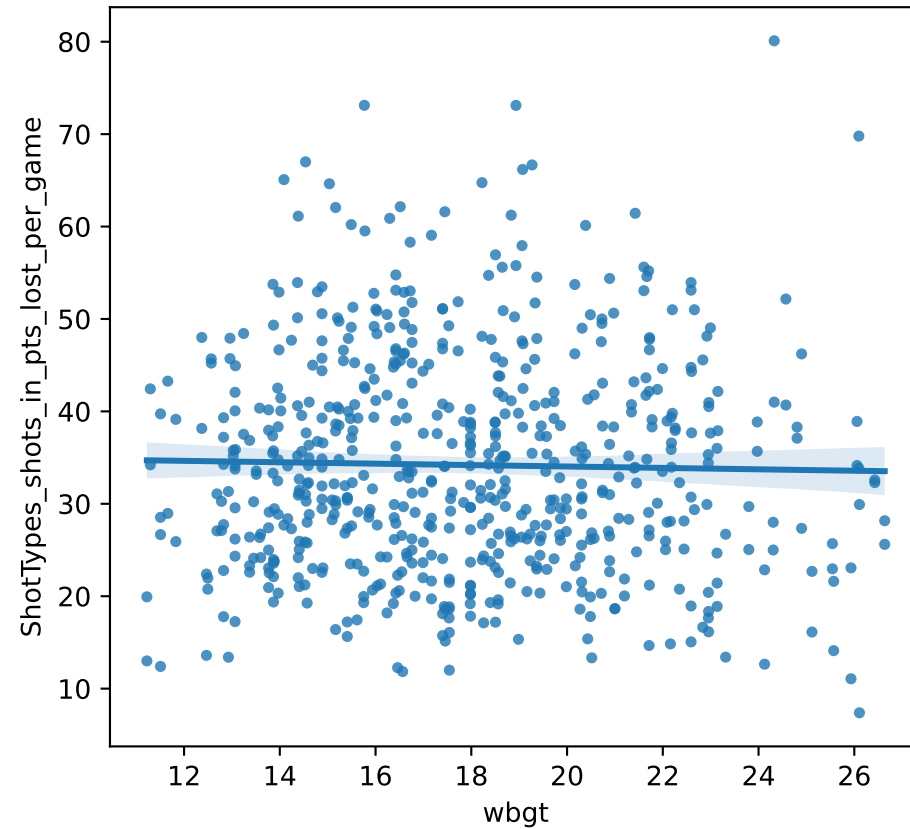
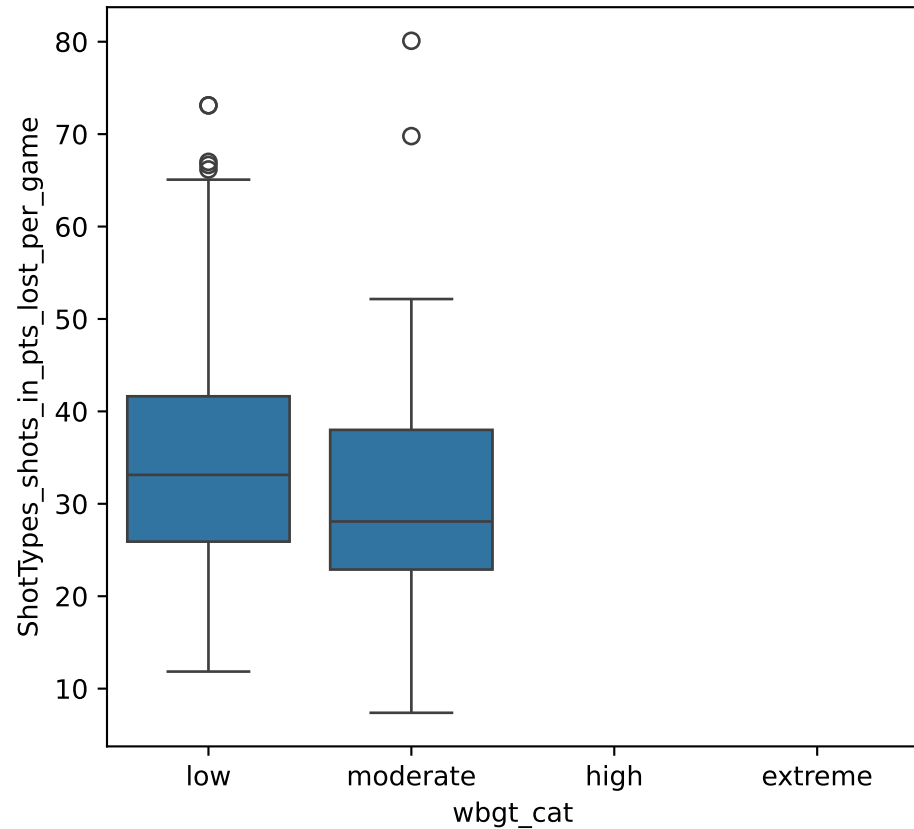
ShotTypes\_shots\_in\_pts\_won\_per\_game - sma\_cat  
Kruskal p=0.0136, Jonckheere p=NA, Corr p=0.7366455554435118  
ShotTypes\_shots\_in\_pts\_won\_per\_game by sma\_cat  
ShotTypes\_shots\_in\_pts\_won\_per\_game vs temp\_C (Spearman r=-0.01, p=0.737)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_won\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.087 | 0.265    |
| high     | 1.0     | 1.0   | 0.156 | 0.442    |
| low      | 0.087   | 0.156 | 1.0   | 1.0      |
| moderate | 0.265   | 0.442 | 1.0   | 1.0      |

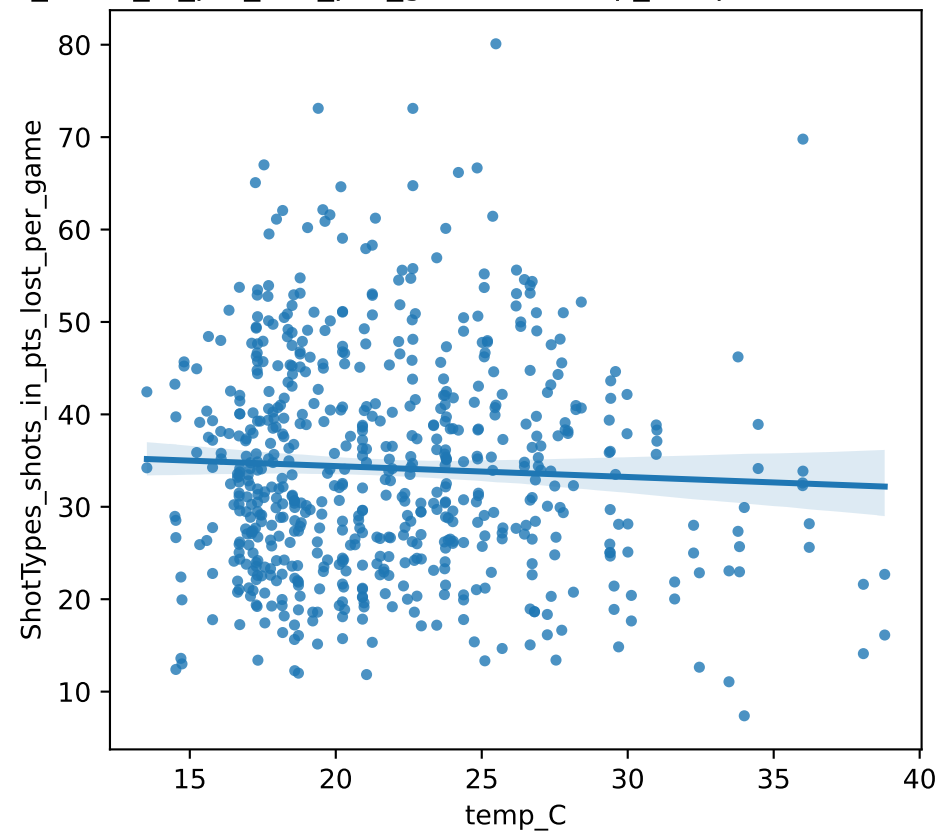
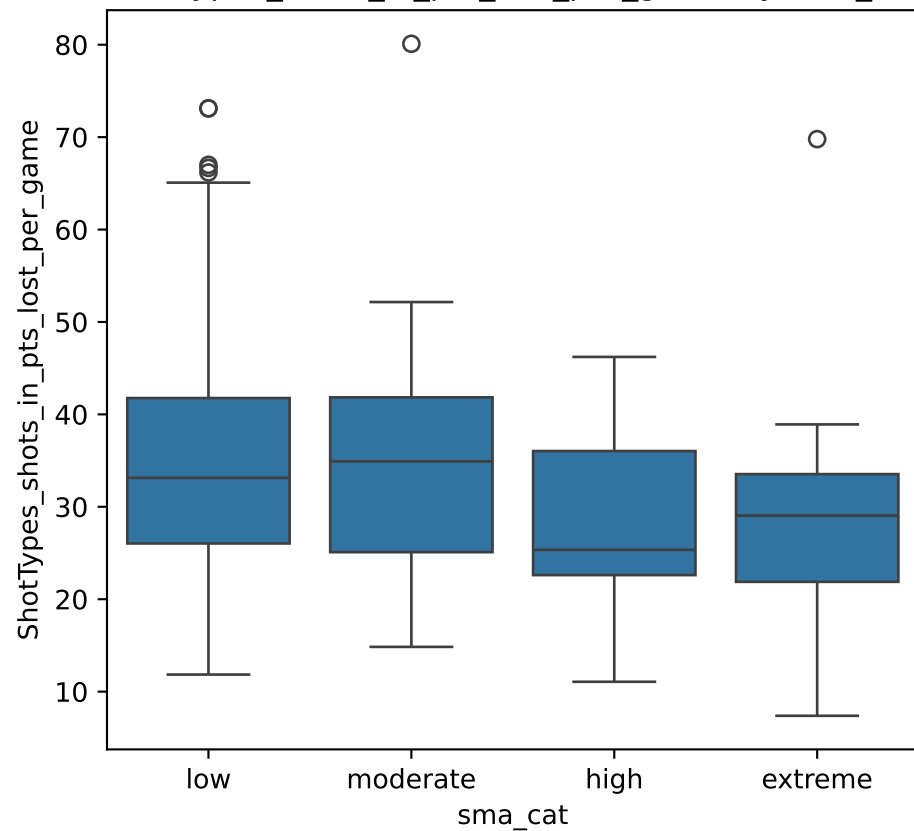
ShotTypes\_shots\_in\_pts\_lost\_per\_game - wbgt\_cat  
Kruskal p=0.0782, Jonckheere p=NA, Corr p=0.6225016910166775  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by wbgt\_cat ShotTypes\_shots\_in\_pts\_lost\_per\_game vs wbgt (Spearman r=-0.02, p=0.623)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.078    |
| moderate | 0.078 | 1.0      |

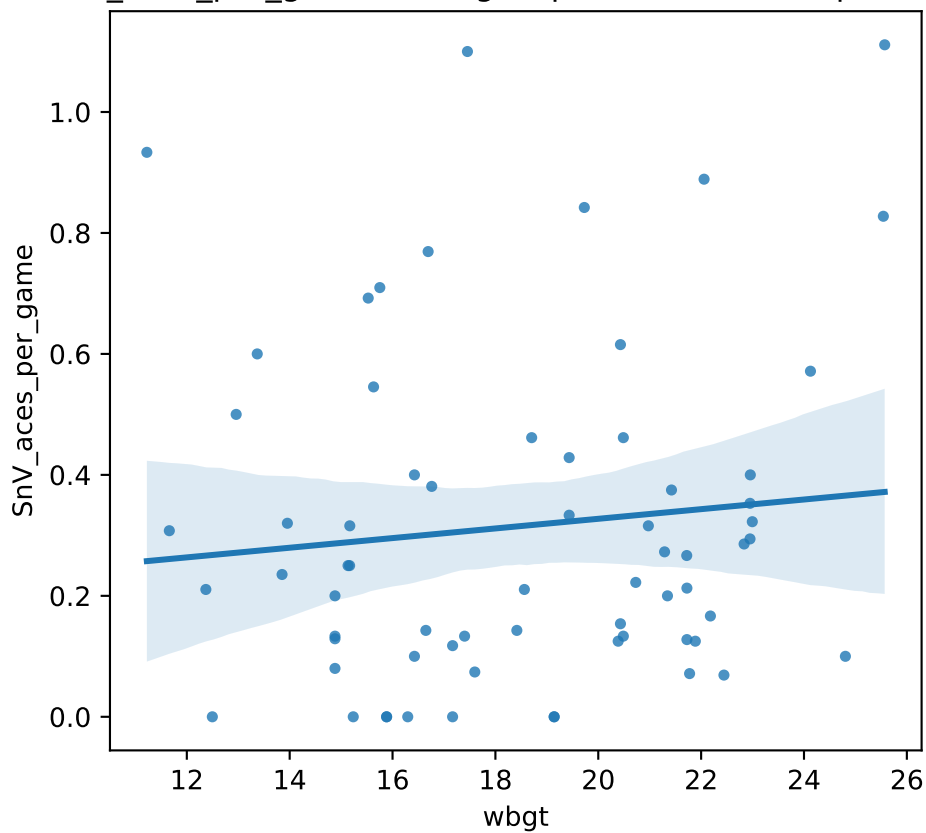
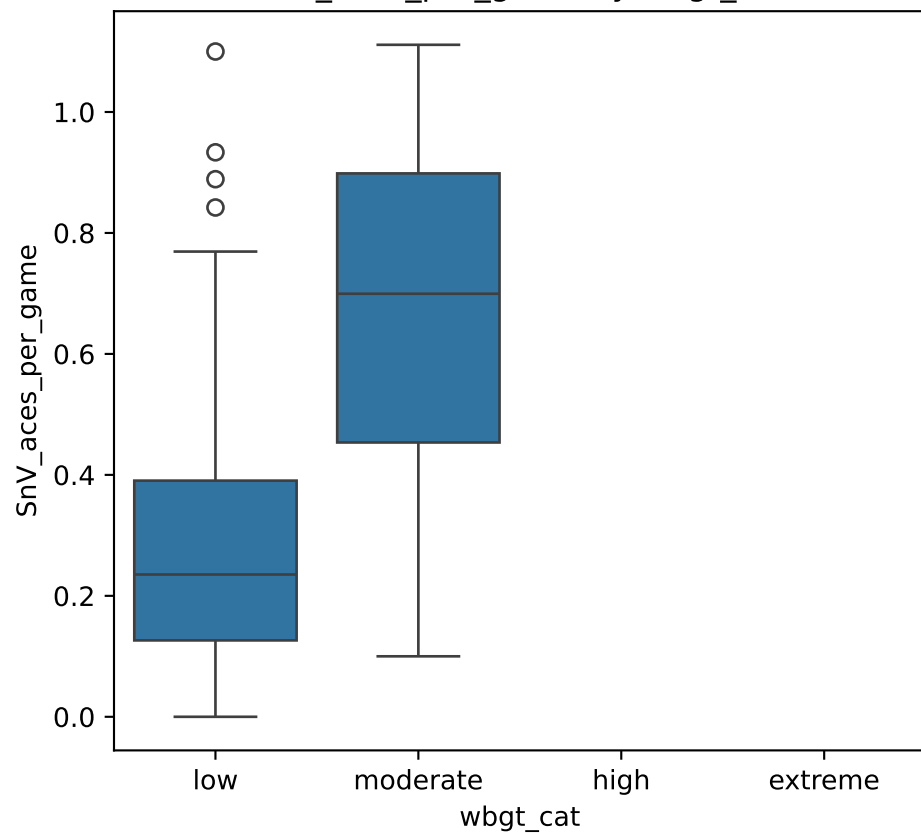
ShotTypes\_shots\_in\_pts\_lost\_per\_game - sma\_cat  
Kruskal p=0.0288, Jonckheere p=NA, Corr p=0.7751922569716707  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by sma\_cat  
ShotTypes\_shots\_in\_pts\_lost\_per\_game vs temp\_C (Spearman r=-0.01, p=0.775)



Dunn Post-hoc (p-değerleri)  
ShotTypes\_shots\_in\_pts\_lost\_per\_game by sma\_cat

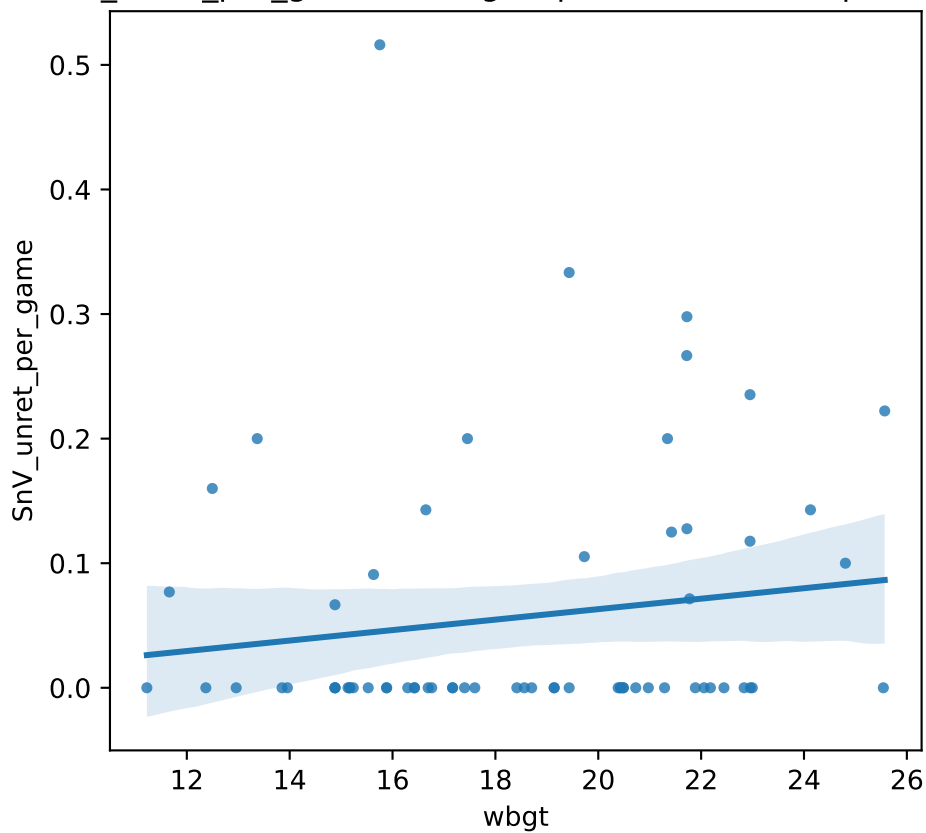
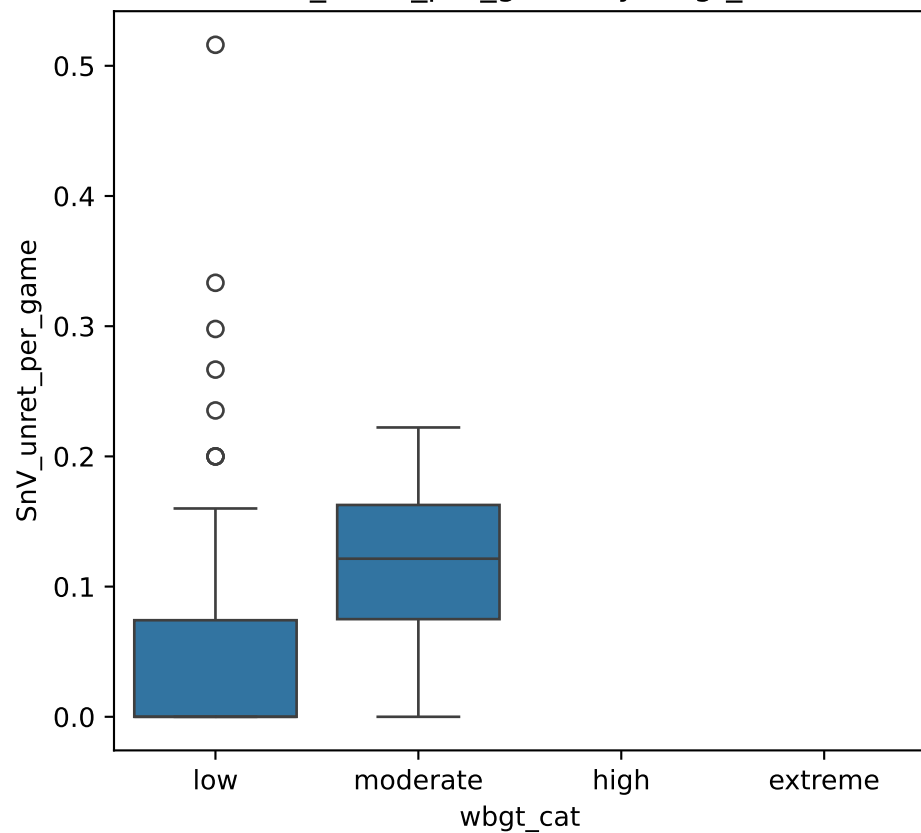
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.39  | 0.657    |
| high     | 1.0     | 1.0   | 0.096 | 0.249    |
| low      | 0.39    | 0.096 | 1.0   | 1.0      |
| moderate | 0.657   | 0.249 | 1.0   | 1.0      |





Dunn Post-hoc (p-değerleri)  
SnV\_aces\_per\_game by wbgt\_cat

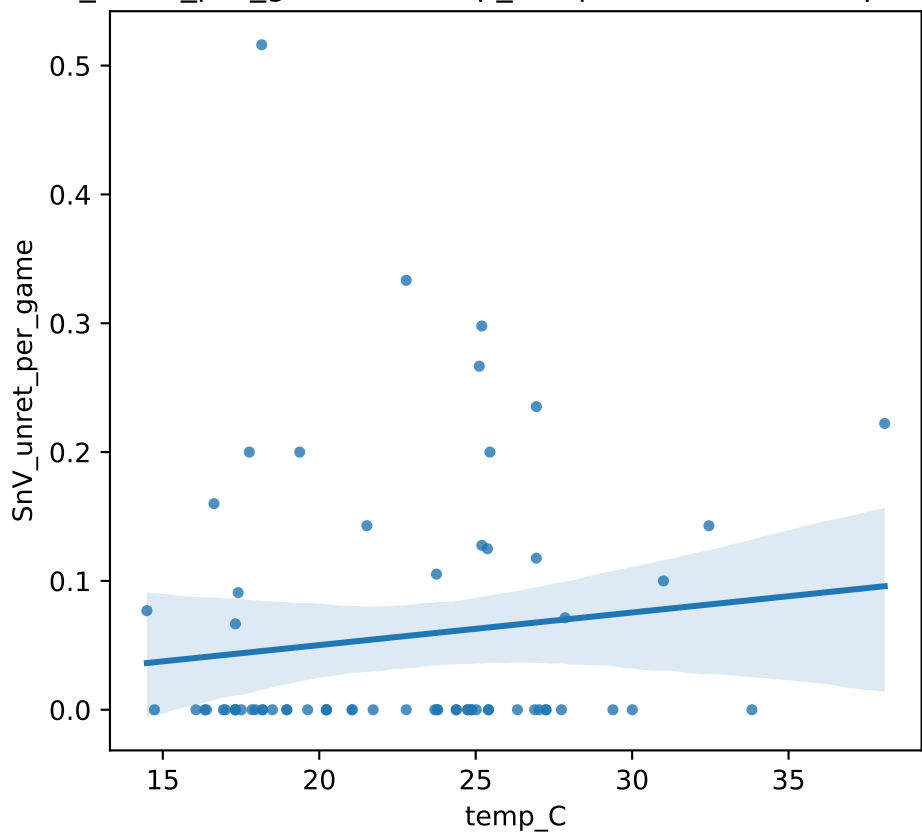
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.098    |
| moderate | 0.098 | 1.0      |



Dunn Post-hoc (p-değerleri)  
SnV\_unret\_per\_game by wbgt\_cat

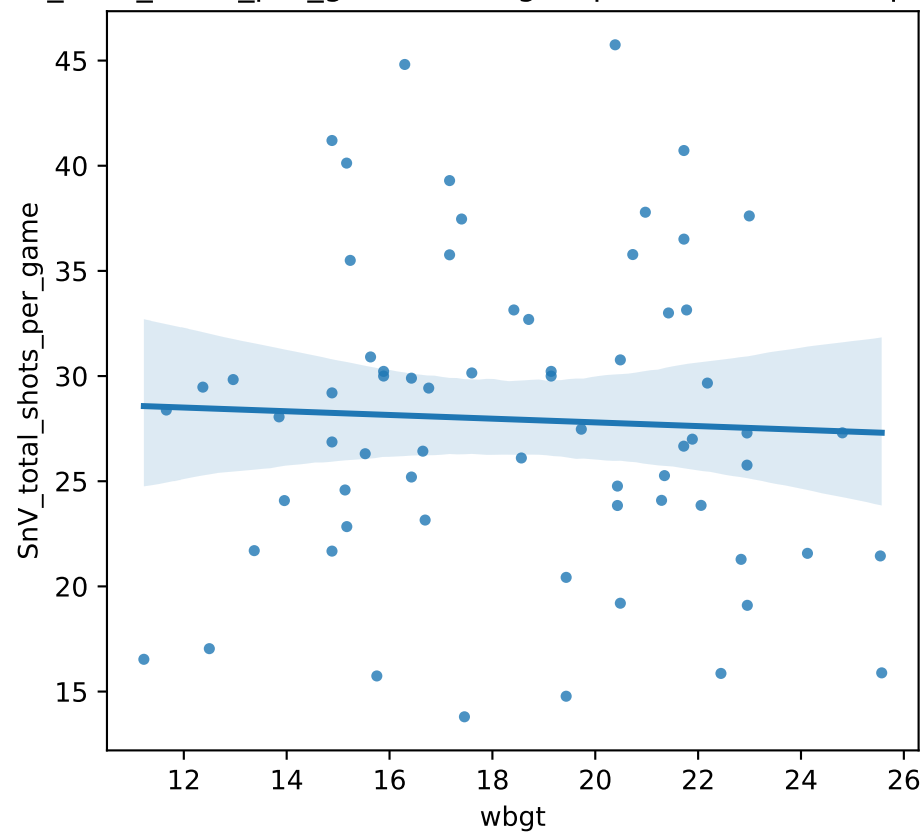
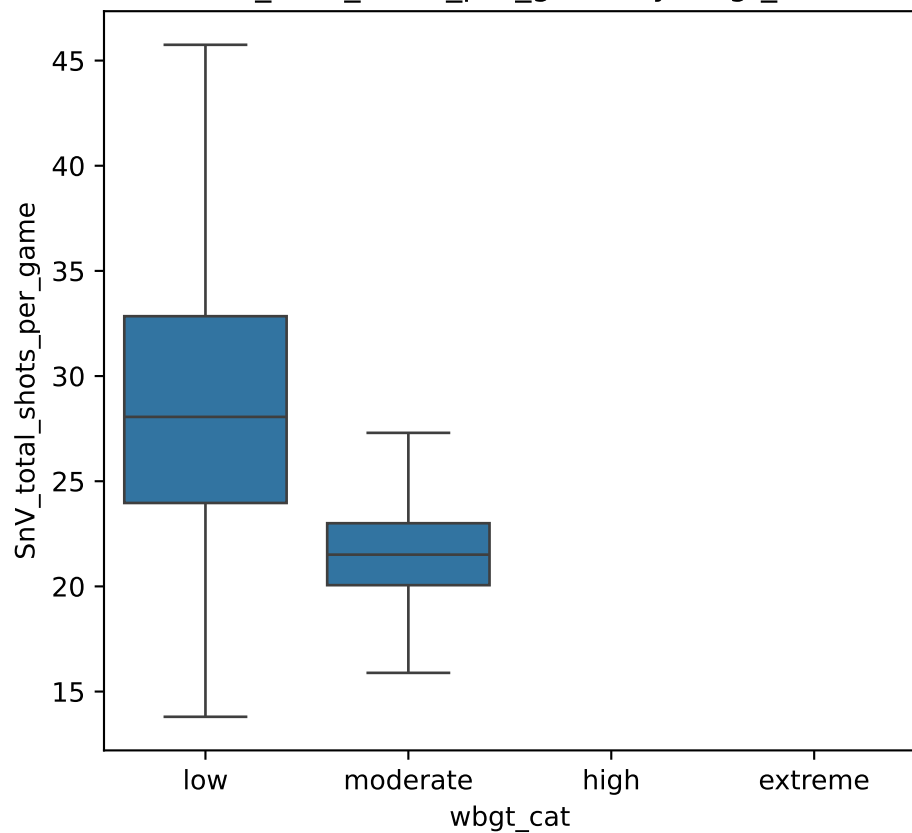
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.067    |
| moderate | 0.067 | 1.0      |

SnV\_unret\_per\_game by sma\_cat Kruskal p=0.118, Jonckheere p=NA, Corr p=0.221917791669307  
SnV\_unret\_per\_game vs temp\_C (Spearman r=0.15, p=0.222)



Dunn Post-hoc (p-değerleri)  
SnV\_unret\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.482 | 0.19     |
| high     | 1.0     | 1.0   | 1.0   | 0.596    |
| low      | 0.482   | 1.0   | 1.0   | 1.0      |
| moderate | 0.19    | 0.596 | 1.0   | 1.0      |

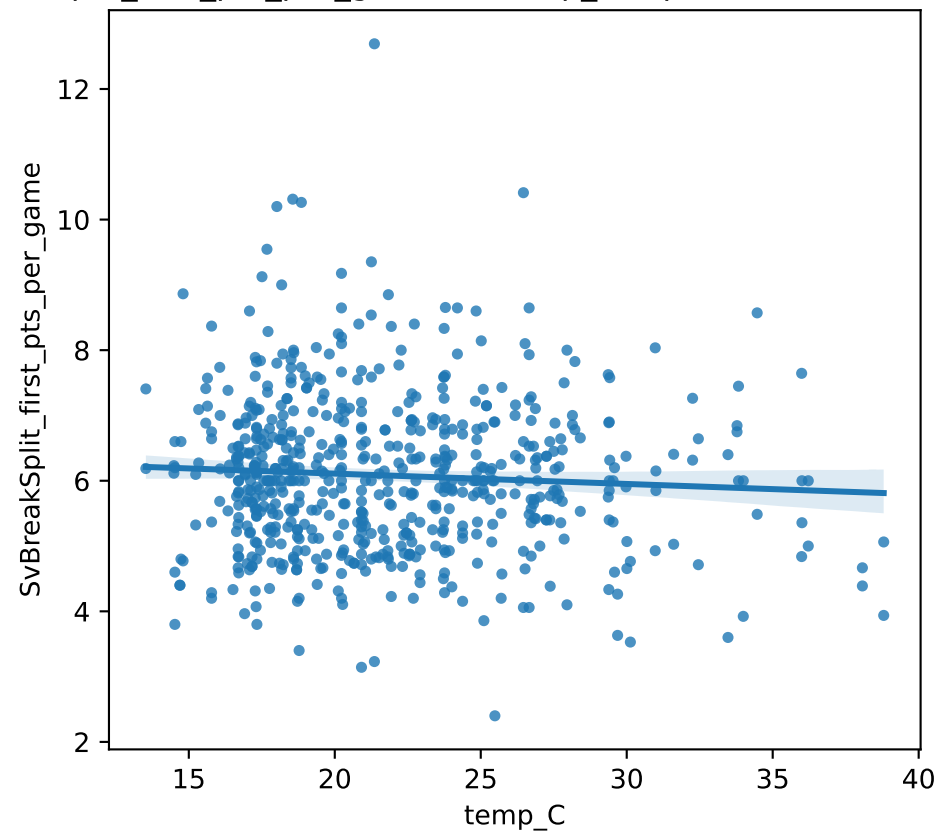
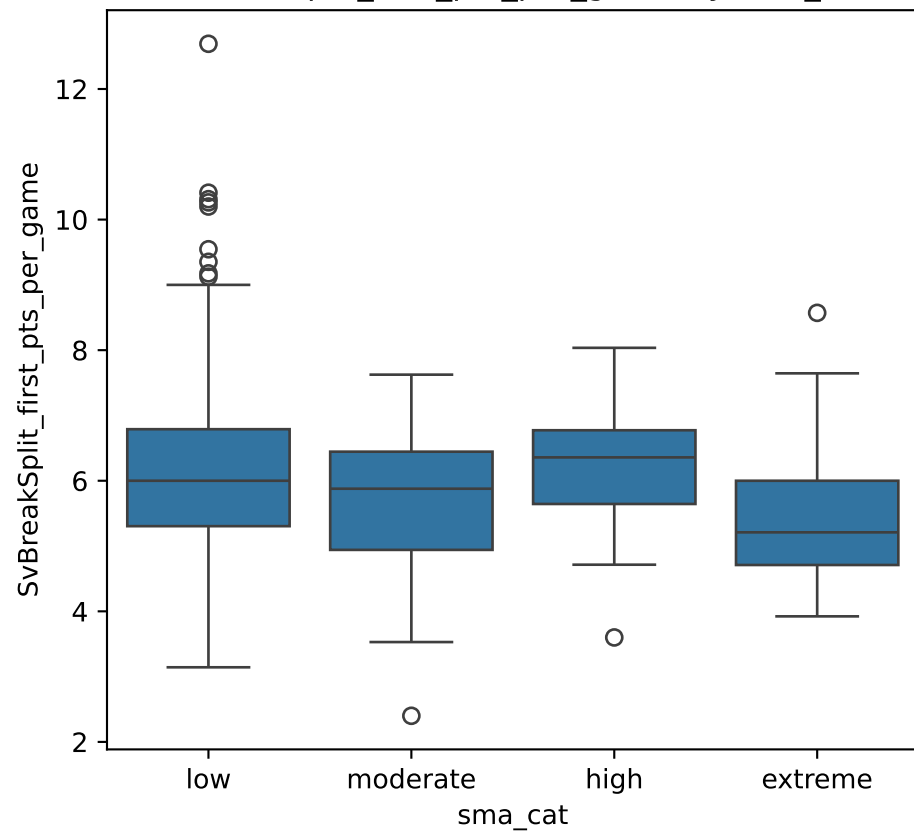


Dunn Post-hoc (p-değerleri)  
SnV\_total\_shots\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.057    |
| moderate | 0.057 | 1.0      |



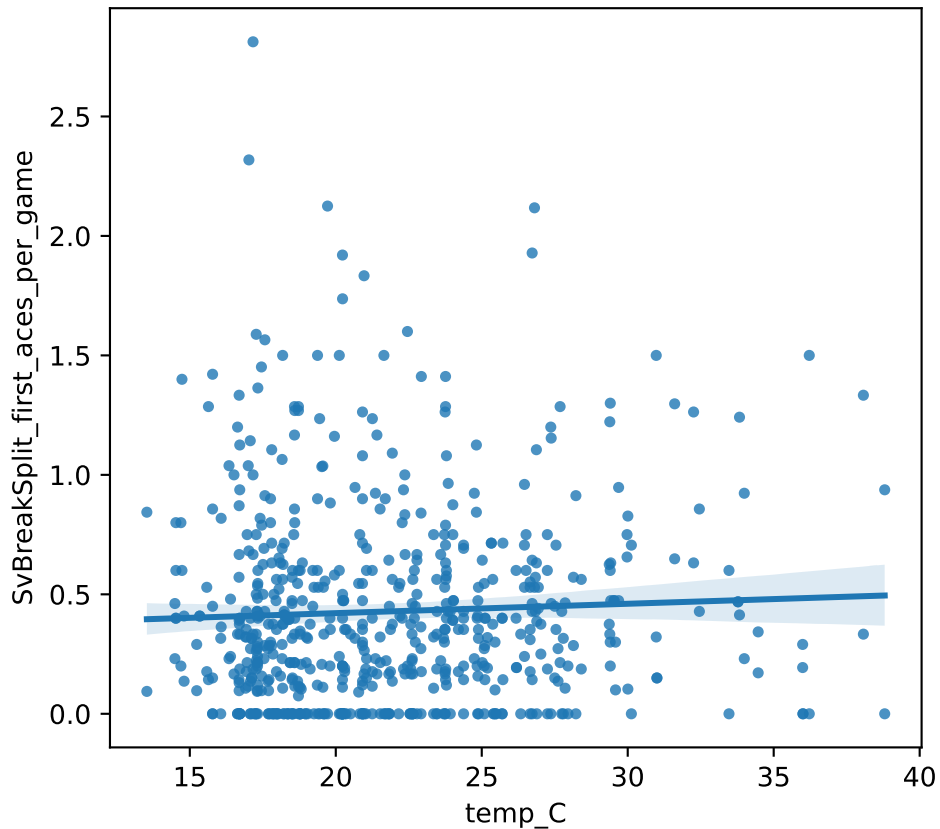
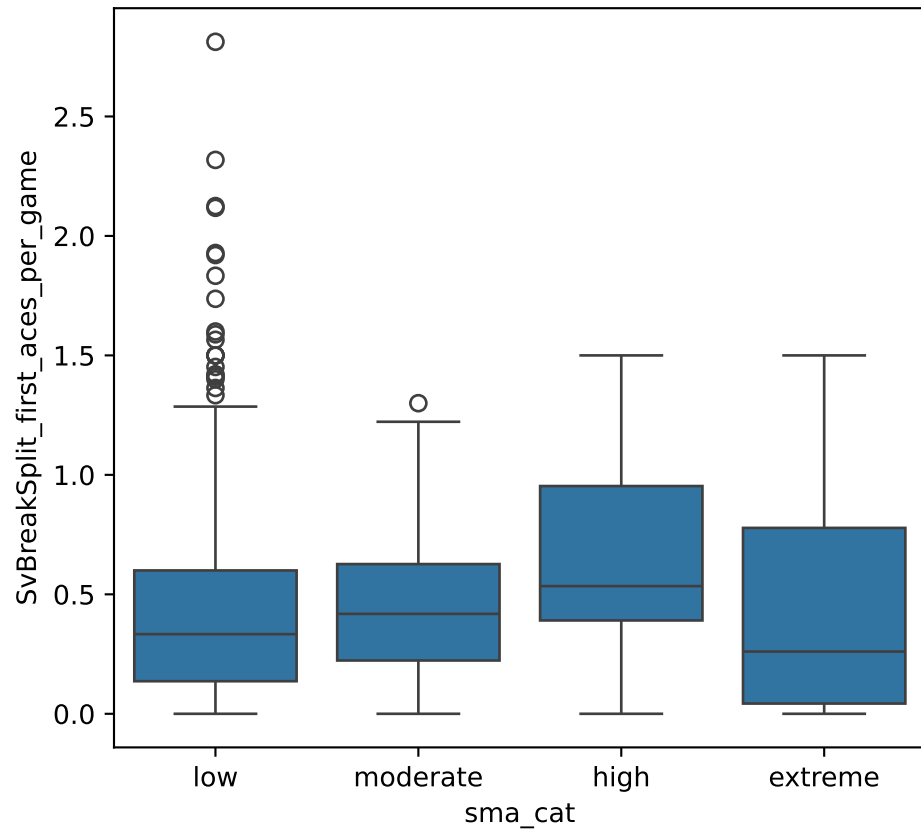
SvBreakSplit\_first\_pts\_per\_game - sma\_cat  
Kruskal p=0.0602, Jonckheere p=NA, Corr p=0.3605365396623713  
SvBreakSplit\_first\_pts\_per\_game by sma\_cat SvBreakSplit\_first\_pts\_per\_game vs temp\_C (Spearman r=-0.04, p=0.361)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.243 | 0.153 | 1.0      |
| high     | 0.243   | 1.0   | 1.0   | 1.0      |
| low      | 0.153   | 1.0   | 1.0   | 0.845    |
| moderate | 1.0     | 1.0   | 0.845 | 1.0      |

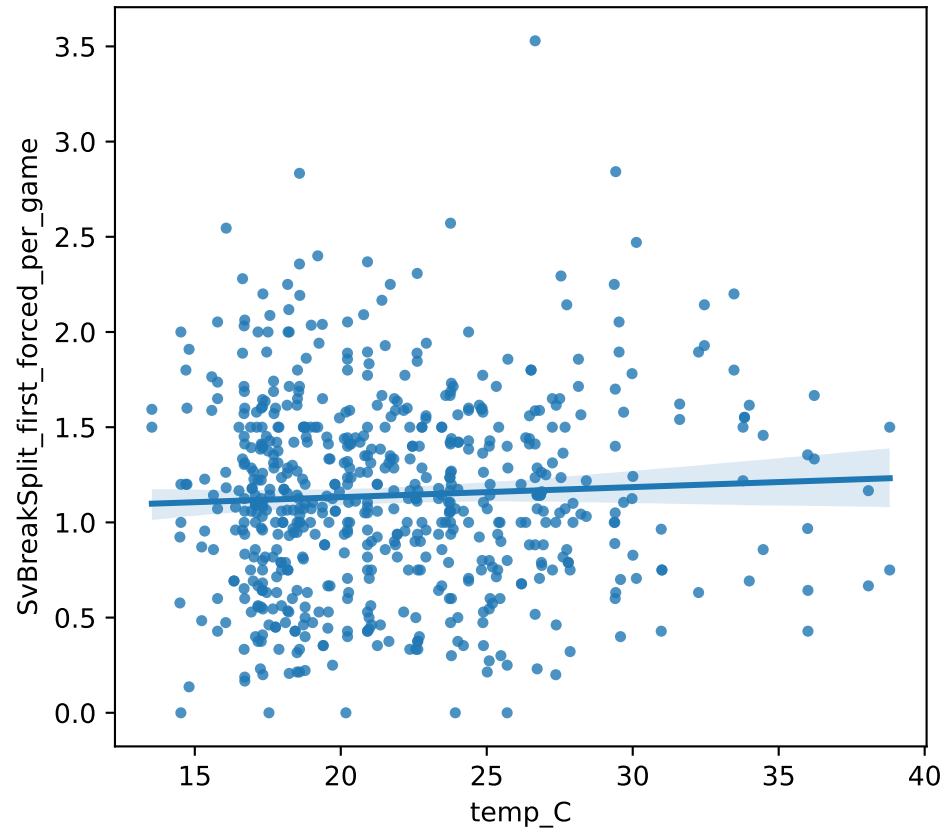
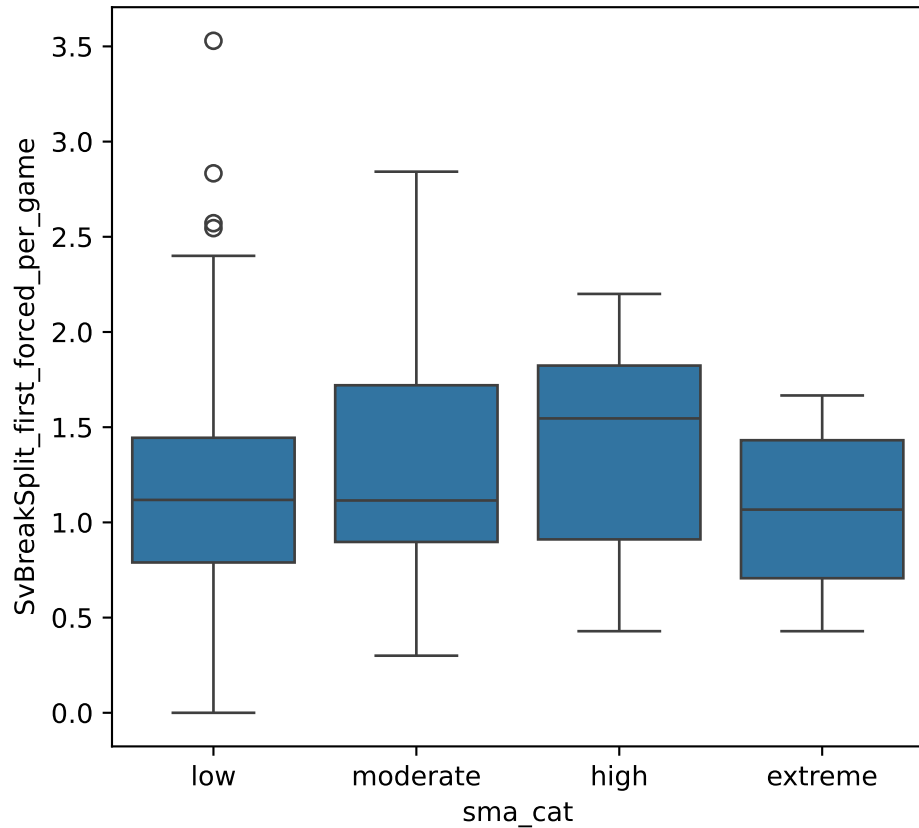
SvBreakSplit\_first\_aces\_per\_game - sma\_cat  
Kruskal p=0.0869, Jonckheere p=NA, Corr p=0.18360603148934132  
SvBreakSplit\_first\_aces\_per\_game by sma\_cat  
SvBreakSplit\_first\_aces\_per\_game vs temp\_C (Spearman r=0.05, p=0.184)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.375 | 1.0   | 1.0      |
| high     | 0.375   | 1.0   | 0.118 | 1.0      |
| low      | 1.0     | 0.118 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |

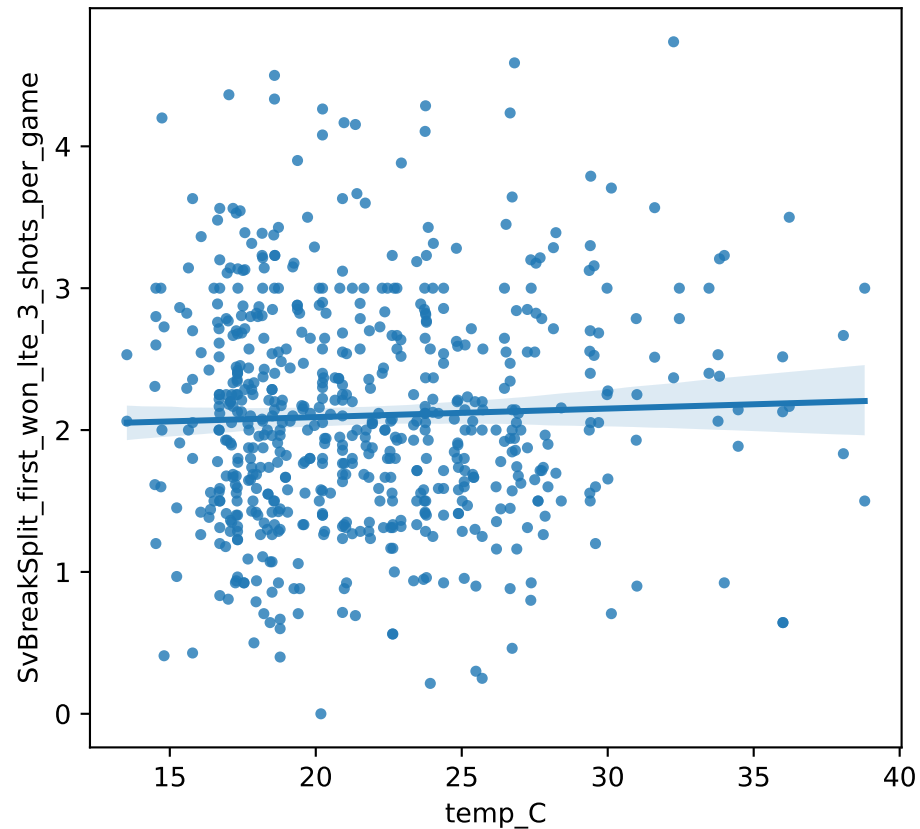
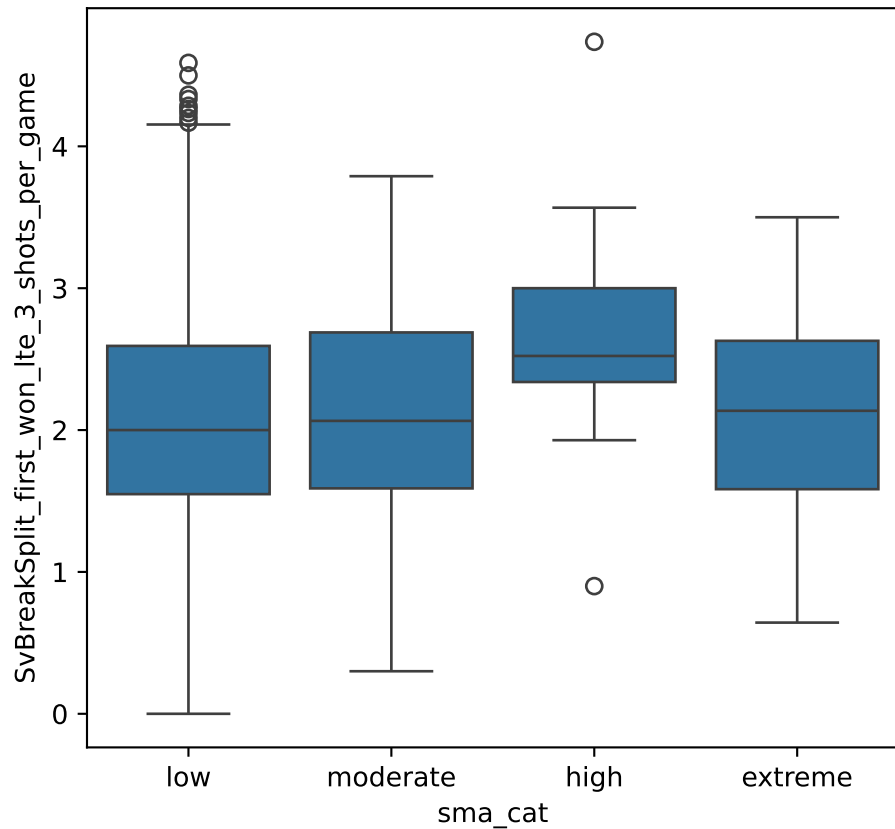
SvBreakSplit\_first\_forced\_per\_game - sma\_cat  
Kruskal p=0.132, Jonckheere p=NA, Corr p=0.5129632860617422  
SvBreakSplit\_first\_forced\_per\_game by sma\_cat  
SvBreakSplit\_first\_forced\_per\_game vs temp\_C (Spearman r=0.03, p=0.513)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_forced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.587 | 1.0   | 1.0      |
| high     | 0.587   | 1.0   | 0.213 | 1.0      |
| low      | 1.0     | 0.213 | 1.0   | 1.0      |
| moderate | 1.0     | 1.0   | 1.0   | 1.0      |

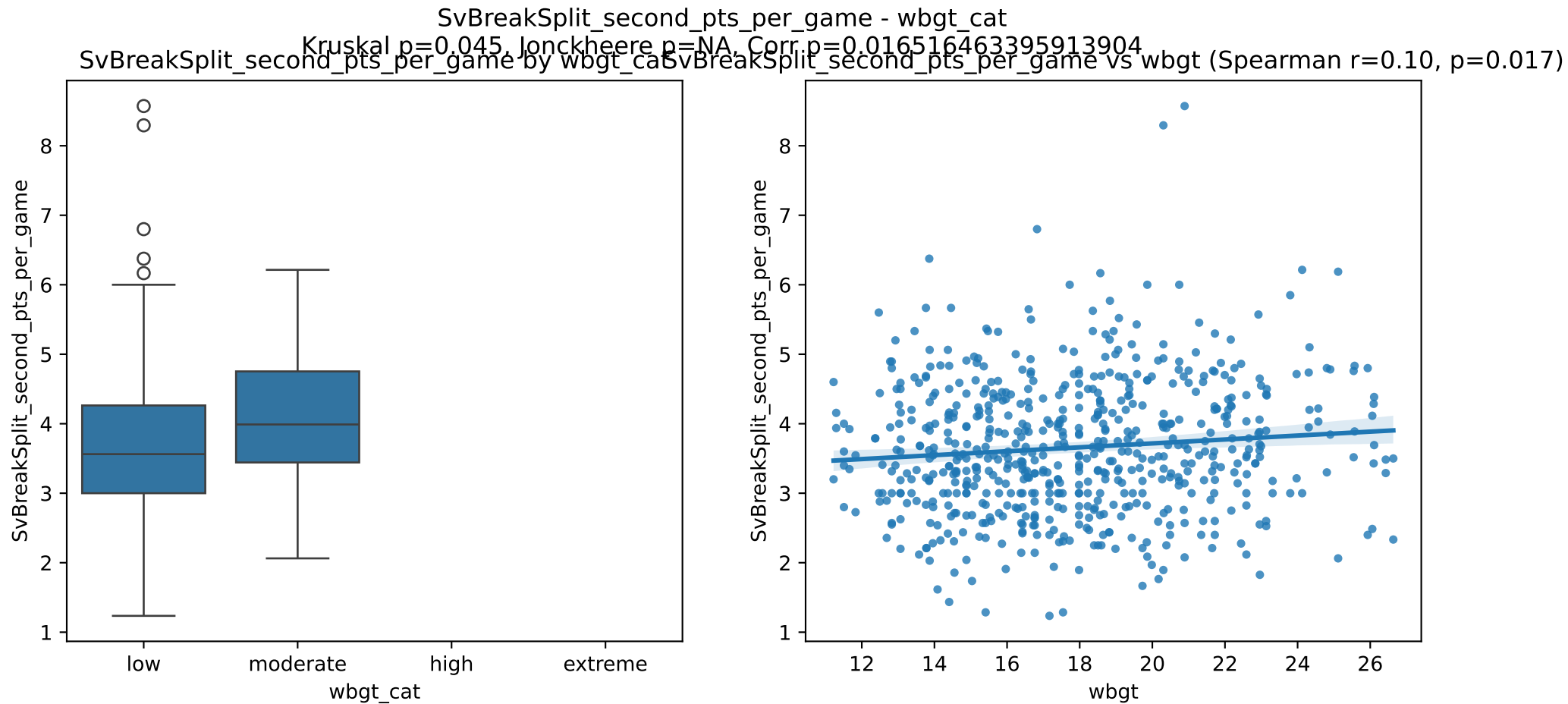
SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game - sma\_cat  
Kruskal p=0.0357, Jonckheere p=NA, Corr p=0.8296995607298208  
SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game vs temp\_C (Spearman r=0.01, p=0.8296995607298208)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_first\_won\_lte\_3\_shots\_per\_game by sma\_cat

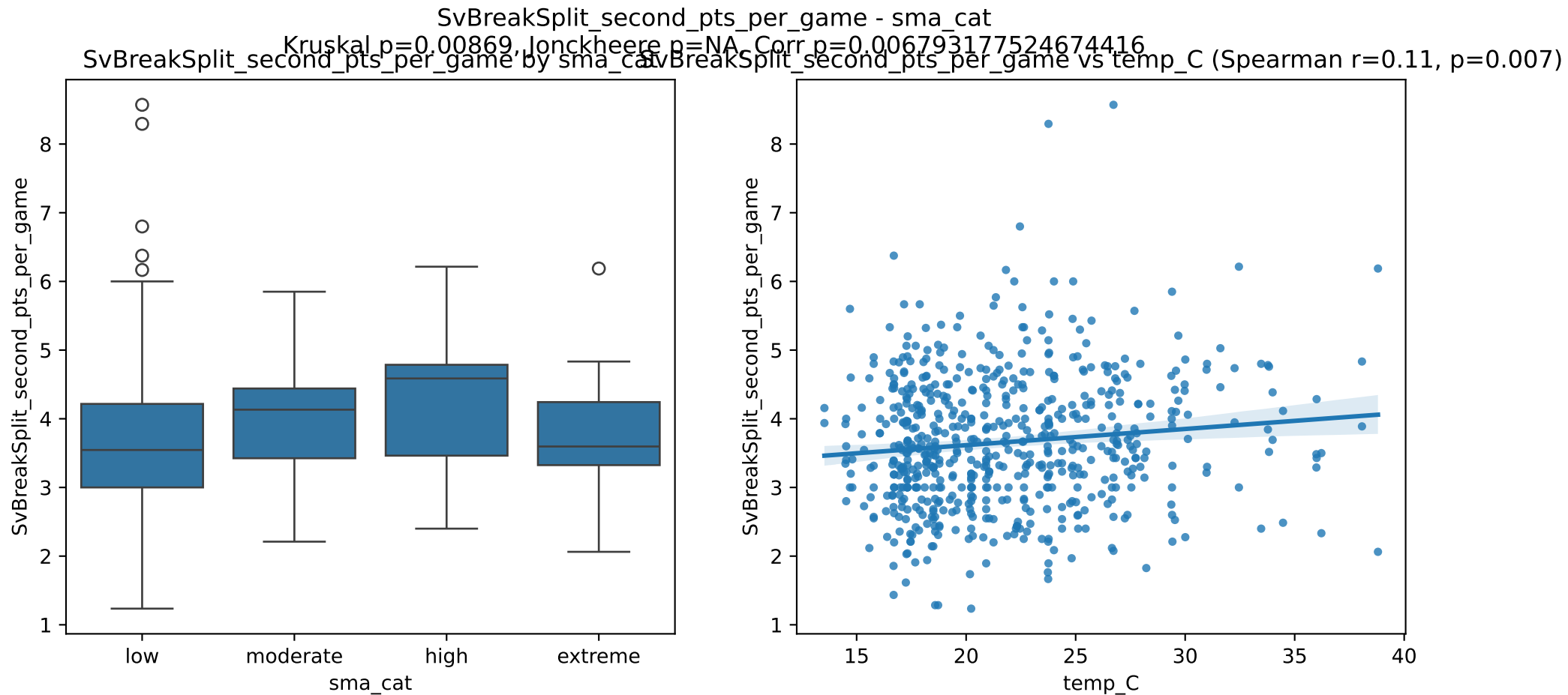
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.334 | 1.0   | 1.0      |
| high     | 0.334   | 1.0   | 0.023 | 0.25     |
| low      | 1.0     | 0.023 | 1.0   | 1.0      |
| moderate | 1.0     | 0.25  | 1.0   | 1.0      |





Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_pts\_per\_game by wbgmt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.045    |
| moderate | 0.045 | 1.0      |

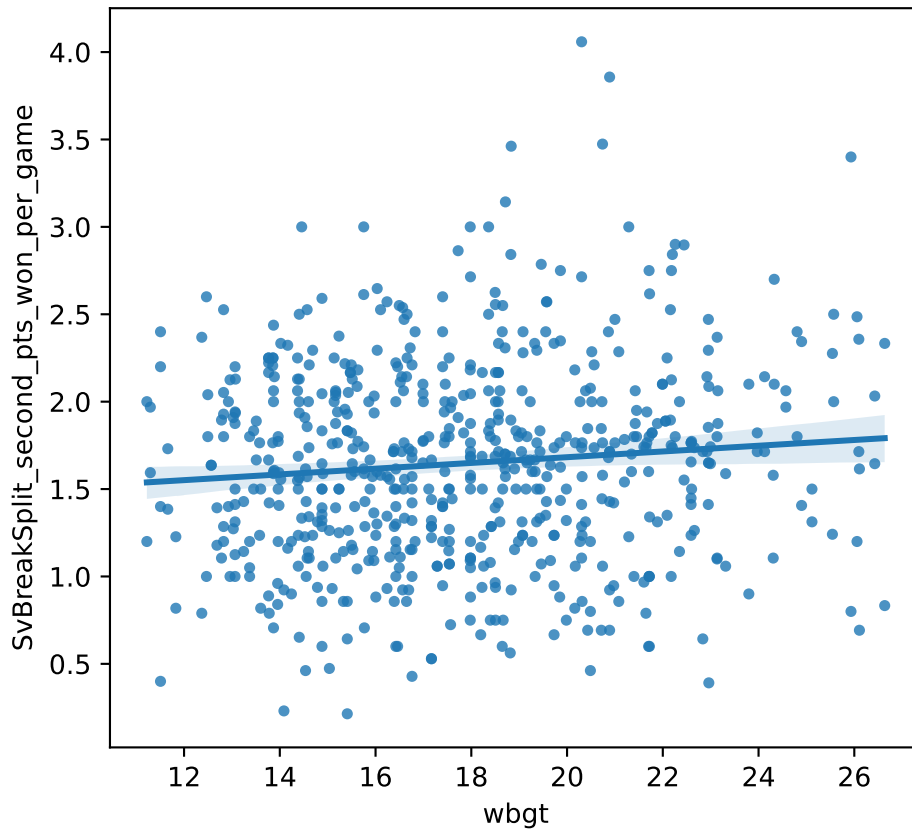
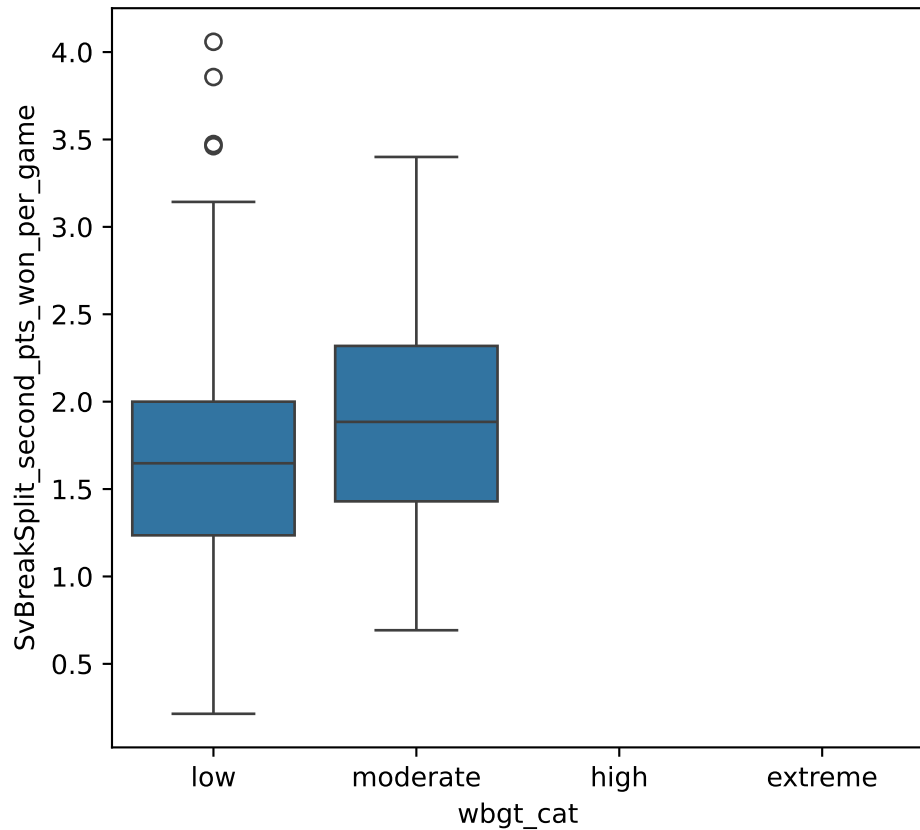


Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_pts\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.776 | 1.0   | 1.0      |
| high     | 0.776   | 1.0   | 0.068 | 1.0      |
| low      | 1.0     | 0.068 | 1.0   | 0.105    |
| moderate | 1.0     | 1.0   | 0.105 | 1.0      |

SvBreakSplit\_second\_pts\_won\_per\_game - wbgt\_cat  
Kruskal p=0.0592, Jonckheere p=NA, Corr p=0.04543882317528254

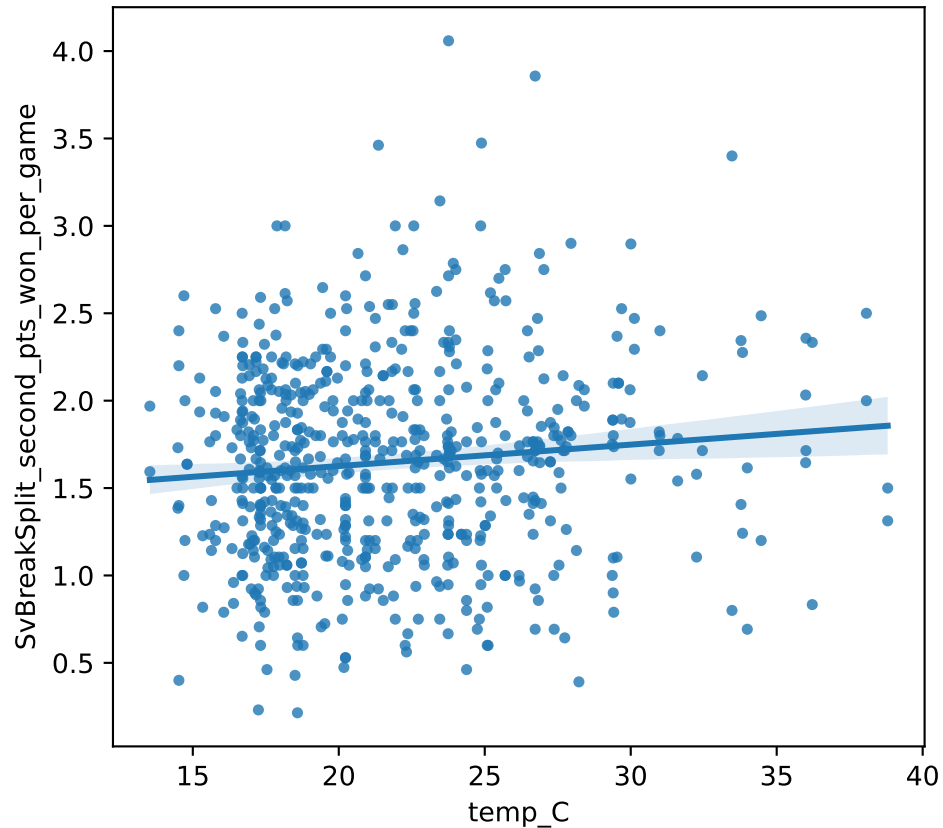
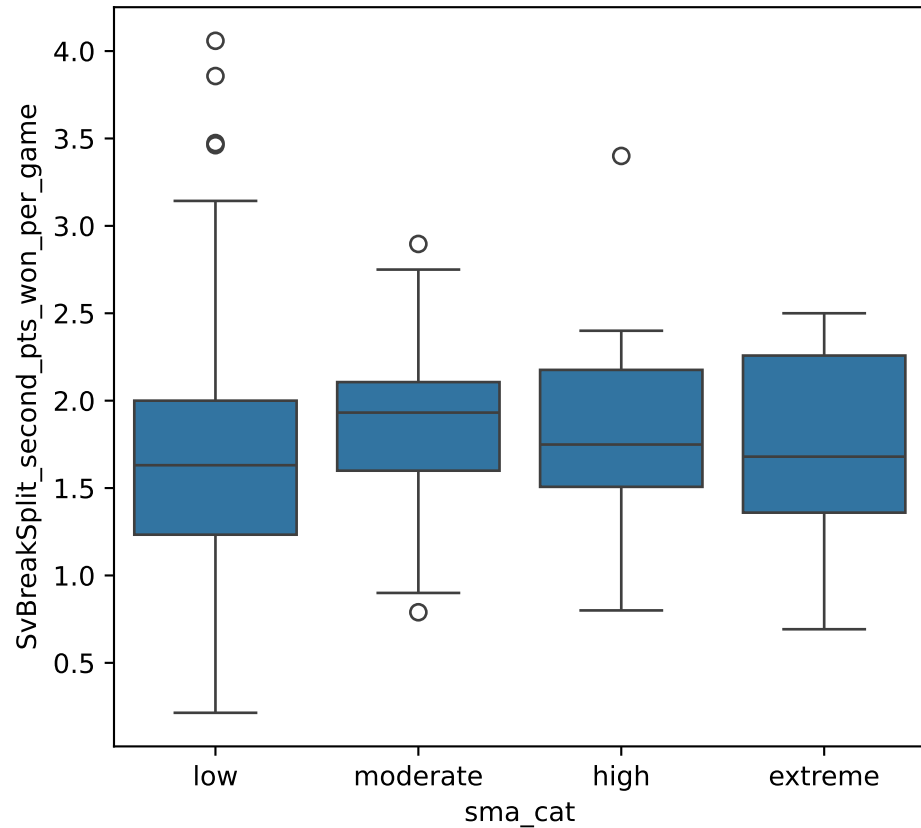
SvBreakSplit\_second\_pts\_won\_per\_game by wbgt\_cat  
SvBreakSplit\_second\_pts\_won\_per\_game vs wbgt (Spearman r=0.08, p=0.045)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_pts\_won\_per\_game by wbgc\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.059    |
| moderate | 0.059 | 1.0      |

SvBreakSplit\_second\_pts\_won\_per\_game - sma\_cat  
Kruskal p=0.0313, Jonckheere p=NA, Corr p=0.03398429641565187  
SvBreakSplit\_second\_pts\_won\_per\_game by sma\_cat  
SvBreakSplit\_second\_pts\_won\_per\_game vs temp\_C (Spearman r=0.08, p=0.034)

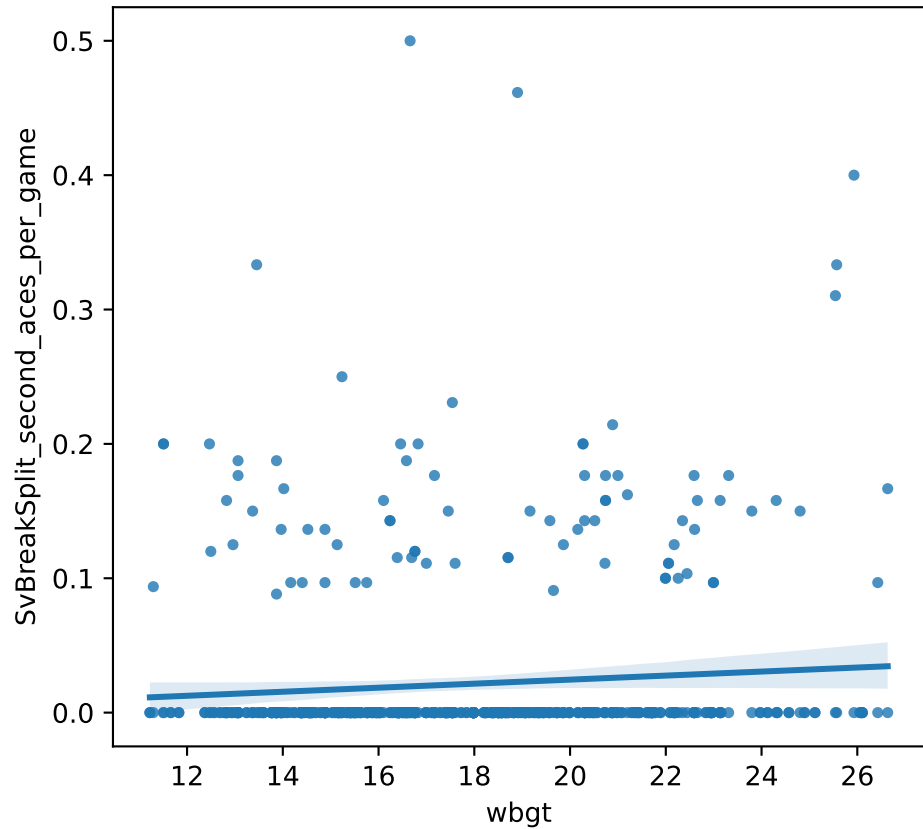
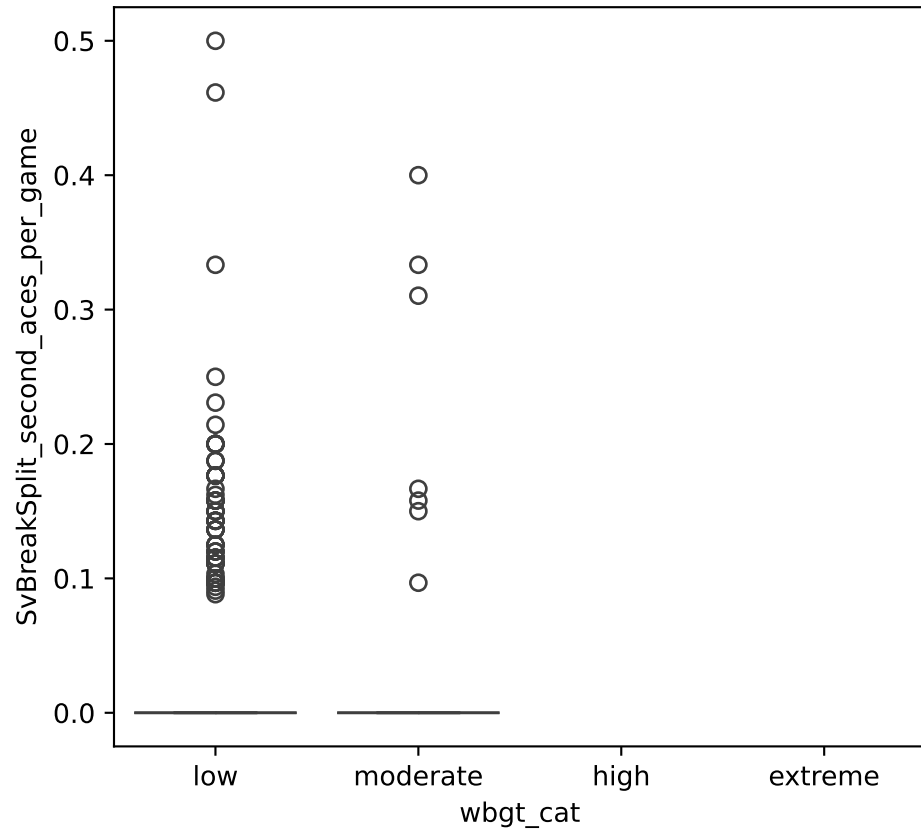


Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_pts\_won\_per\_game by sma\_cat

|          | extreme | high | low   | moderate |
|----------|---------|------|-------|----------|
| extreme  | 1.0     | 1.0  | 1.0   | 1.0      |
| high     | 1.0     | 1.0  | 1.0   | 1.0      |
| low      | 1.0     | 1.0  | 1.0   | 0.041    |
| moderate | 1.0     | 1.0  | 0.041 | 1.0      |



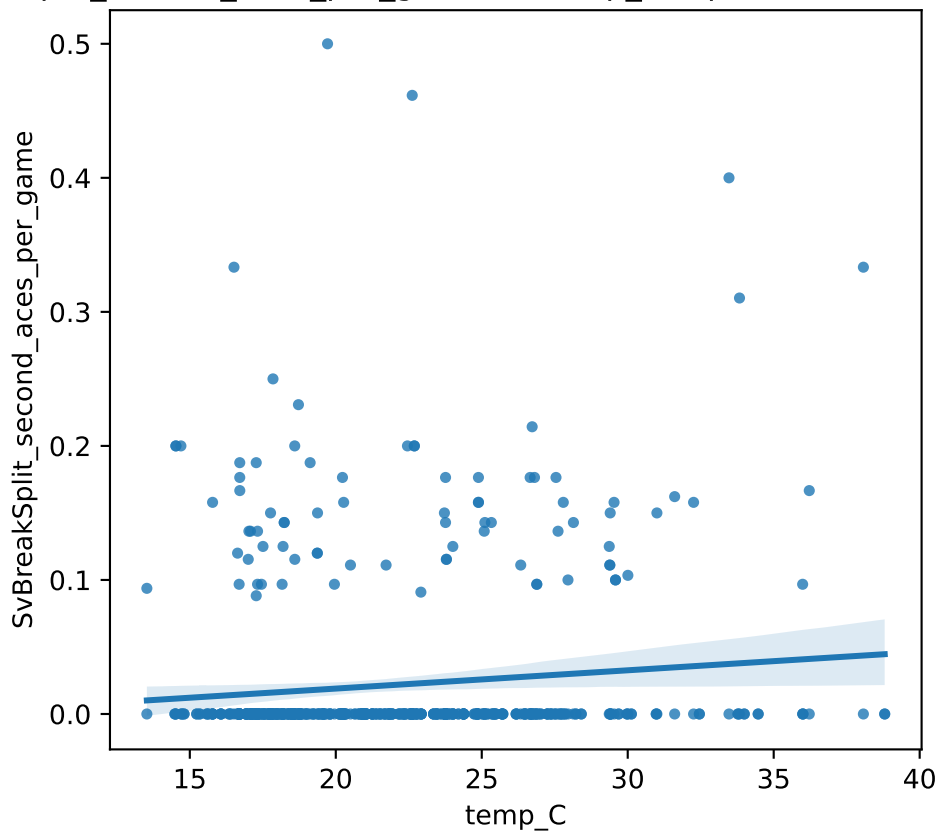
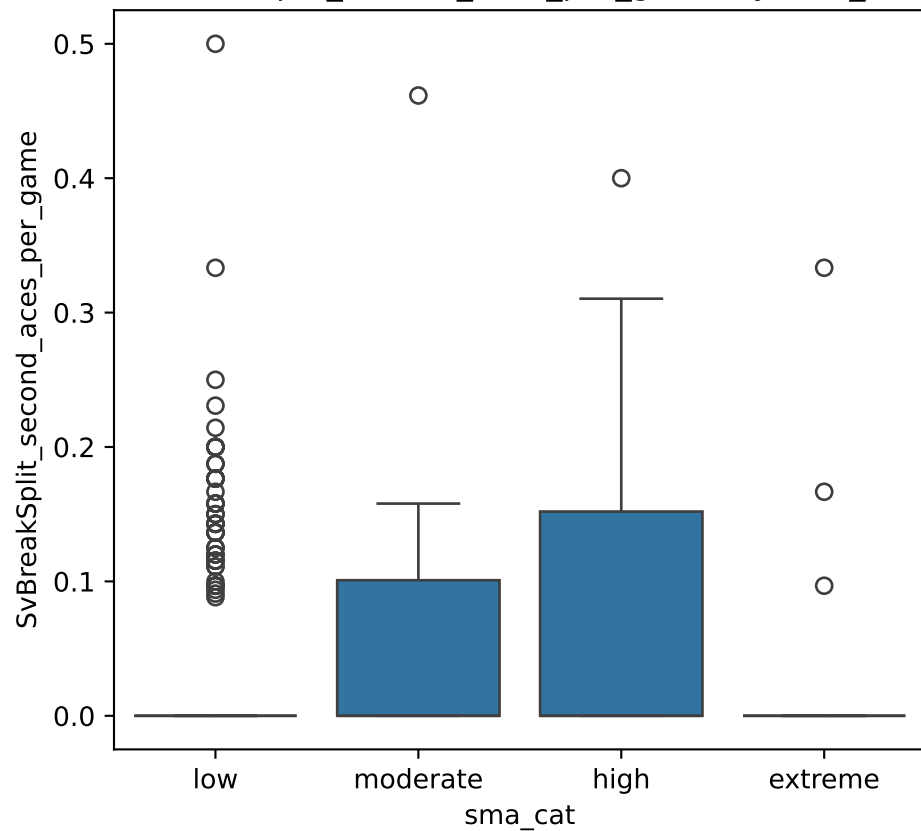
SvBreakSplit\_second\_aces\_per\_game - wbgc\_cat  
 Kruskal p=0.0627, Jonckheere p=NA, Corr p=0.08735026751523994  
 SvBreakSplit\_second\_aces\_per\_game by wbgc\_cat  
 SvBreakSplit\_second\_aces\_per\_game vs wbgc (Spearman r=0.07, p=0.087)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_aces\_per\_game by wbgmt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.063    |
| moderate | 0.063 | 1.0      |

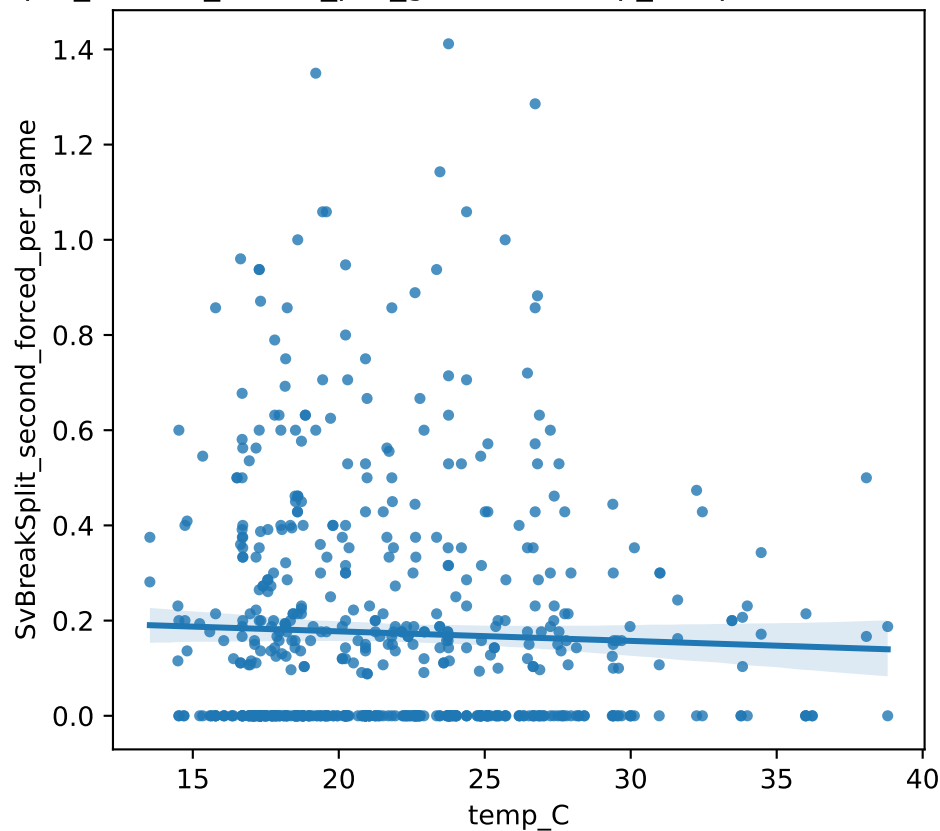
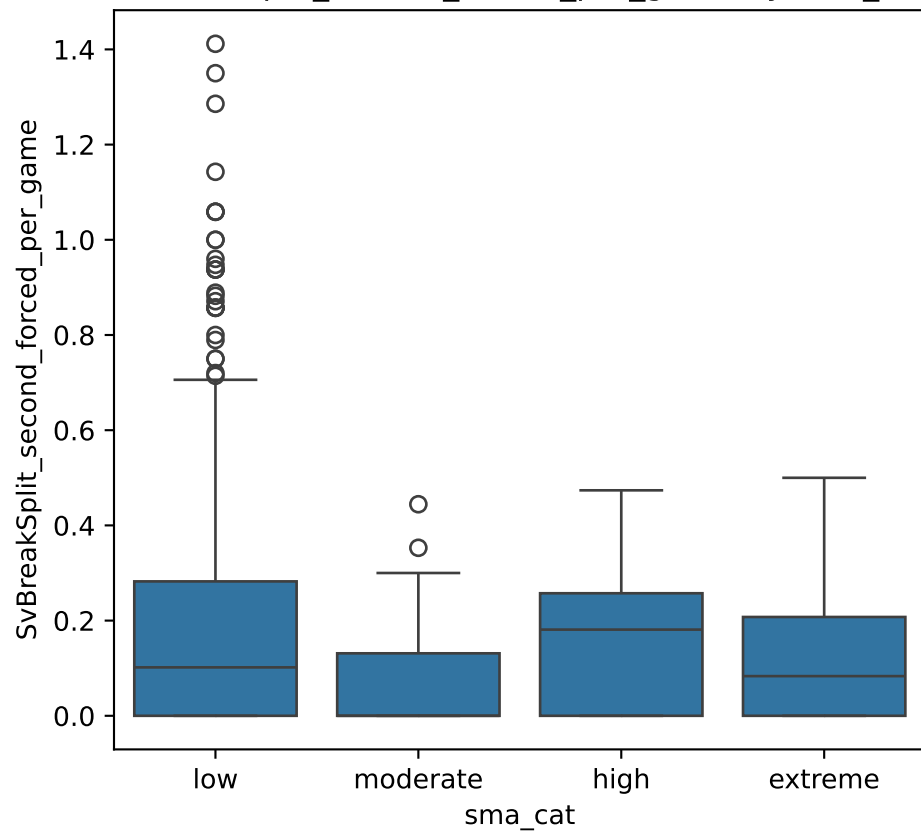
SvBreakSplit\_second\_aces\_per\_game - sma\_cat  
Kruskal p=0.00119, Jonckheere p=NA, Corr p=0.08725496413793607  
SvBreakSplit\_second\_aces\_per\_game by sma\_cat  
SvBreakSplit\_second\_aces\_per\_game vs temp\_C (Spearman r=0.07, p=0.087)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_aces\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 0.068 | 1.0      |
| low      | 1.0     | 0.068 | 1.0   | 0.015    |
| moderate | 1.0     | 1.0   | 0.015 | 1.0      |

SvBreakSplit\_second\_forced\_per\_game - sma\_cat  
Kruskal p=0.0673, Jonckheere p=NA, Corr p=0.6291113764431377  
SvBreakSplit\_second\_forced\_per\_game by sma\_cat  
SvBreakSplit\_second\_forced\_per\_game vs temp\_C (Spearman r=-0.02, p=0.629)



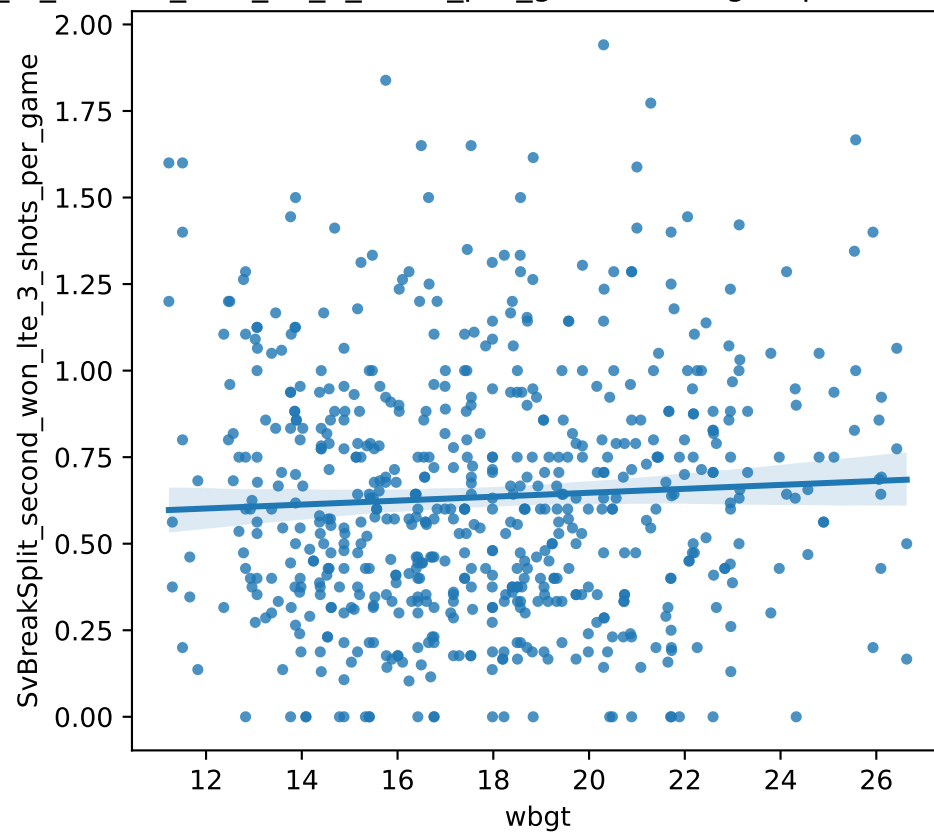
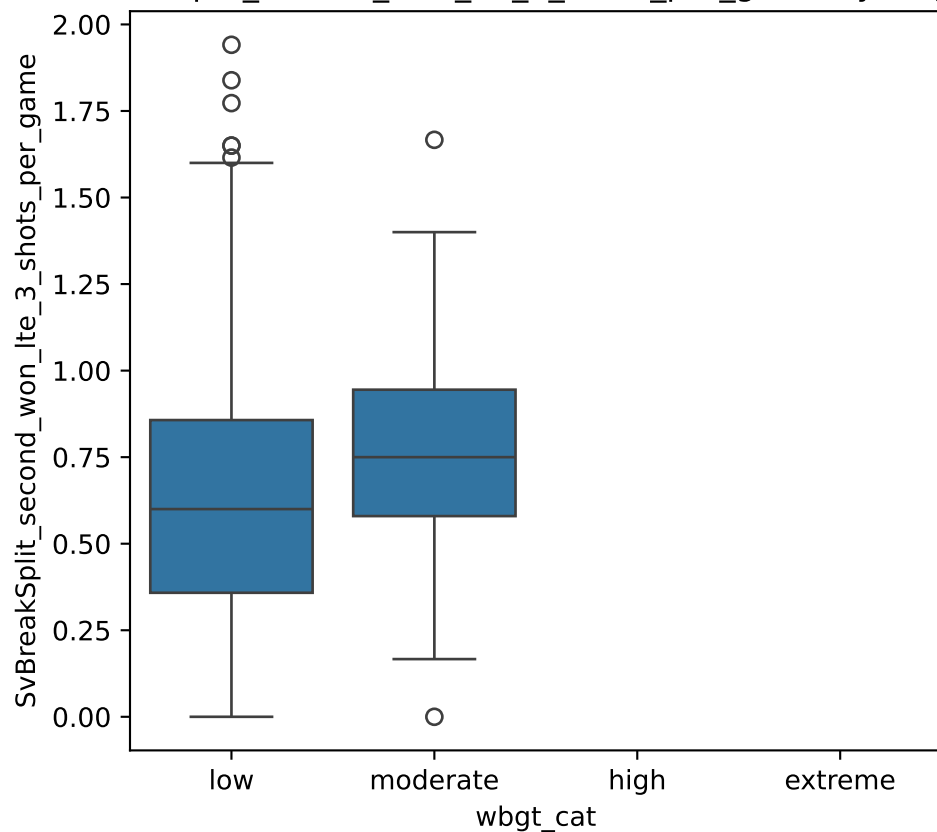
Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_forced\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 1.0   | 1.0      |
| high     | 1.0     | 1.0   | 1.0   | 0.172    |
| low      | 1.0     | 1.0   | 1.0   | 0.077    |
| moderate | 1.0     | 0.172 | 0.077 | 1.0      |

SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game - wbgt\_cat

Kruskal p=0.0164, Jonckheere p=NA, Corr p=0.19822008787086226

SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game vs wbgt (Spearman r=0.05, p=0.19822008787086226)



# Dunn Post-hoc (p-değerleri)

SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game by wbgt\_cat

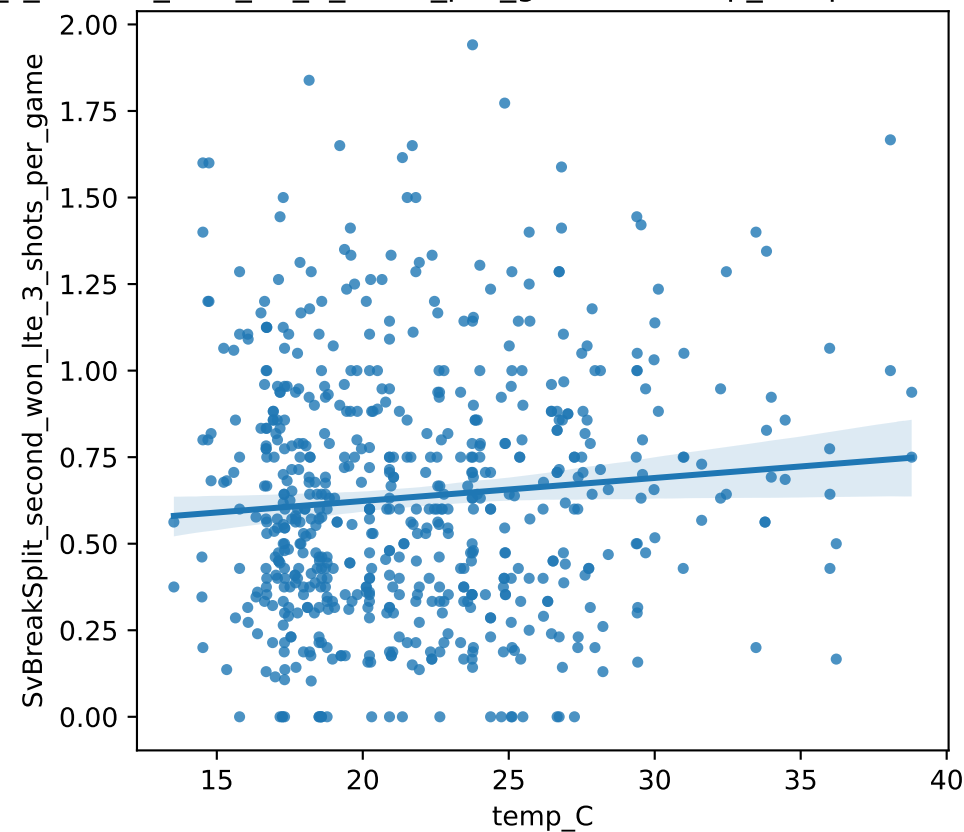
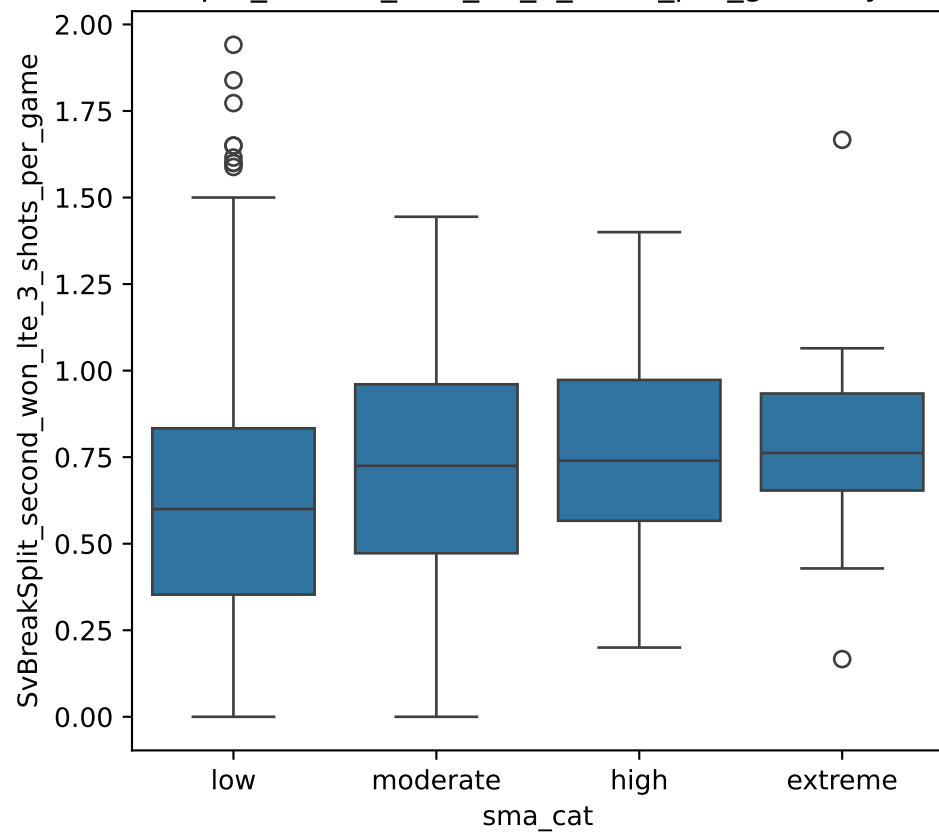
|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.016    |
| moderate | 0.016 | 1.0      |



SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game - sma\_cat

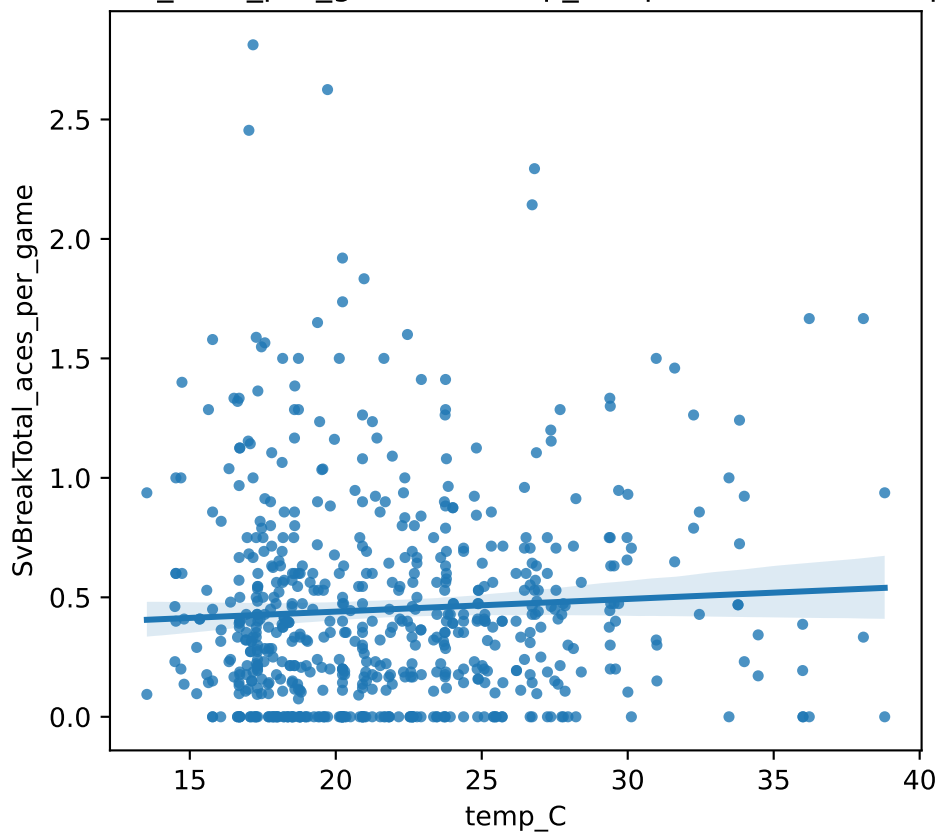
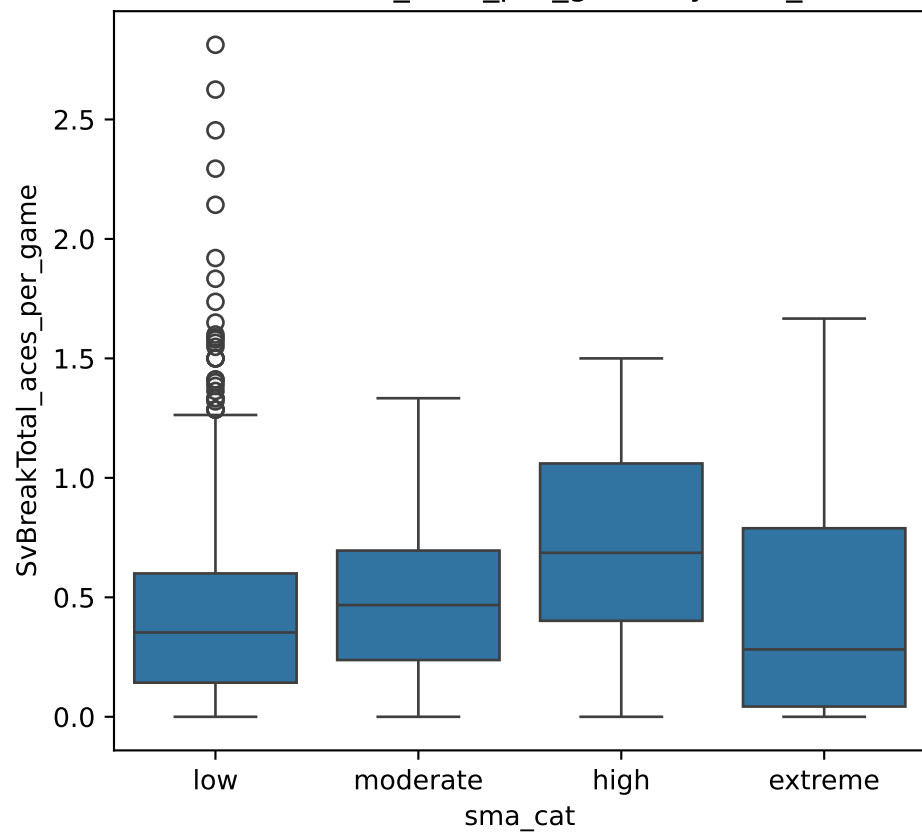
Kruskal p=0.0171, Jonckheere p=NA, Corr p=0.1558418883599604

SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game vs temp\_C (Spearman r=0.06, p=0.1558418883599604)



Dunn Post-hoc (p-değerleri)  
SvBreakSplit\_second\_won\_lte\_3\_shots\_per\_game by sma\_cat

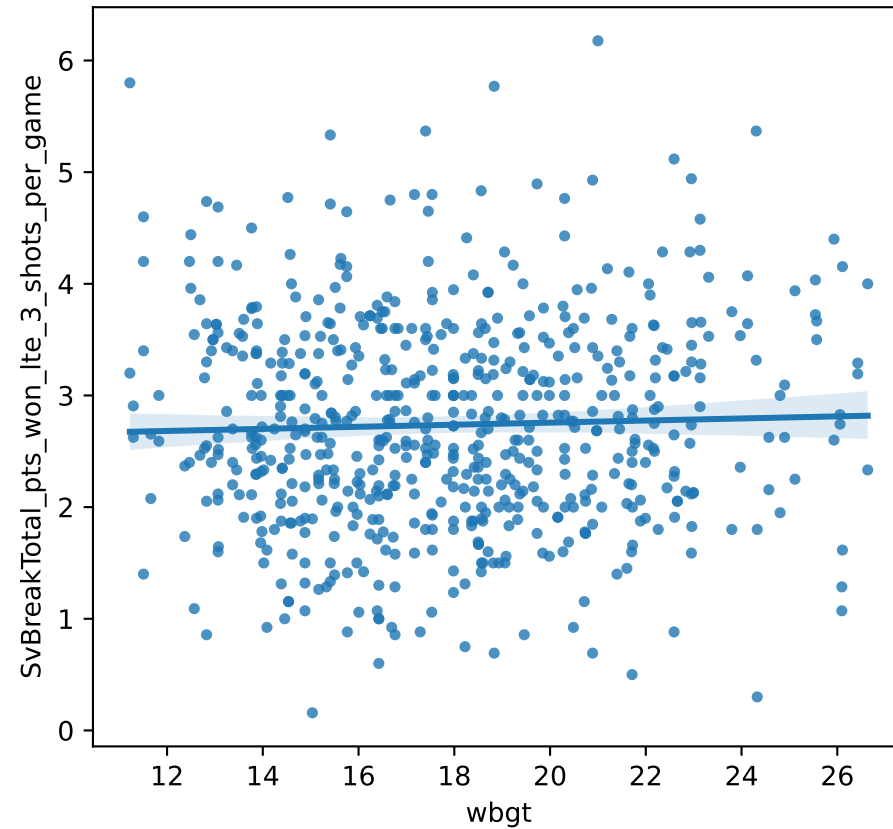
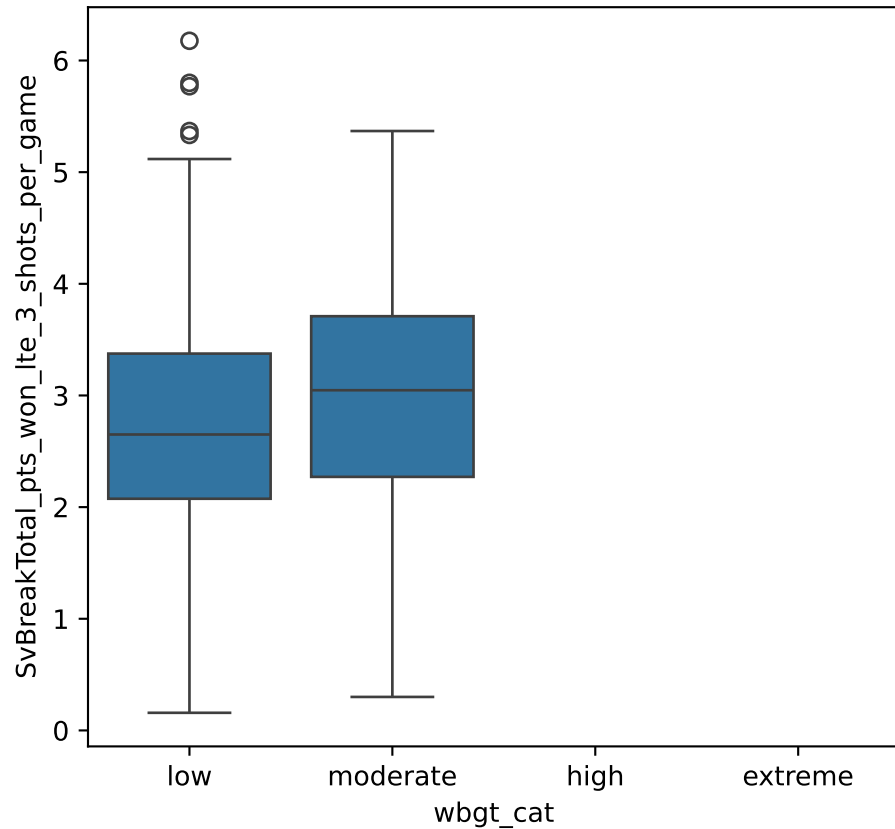
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.333 | 1.0      |
| high     | 1.0     | 1.0   | 0.296 | 1.0      |
| low      | 0.333   | 0.296 | 1.0   | 0.41     |
| moderate | 1.0     | 1.0   | 0.41  | 1.0      |



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_aces\_per\_game by sma\_cat

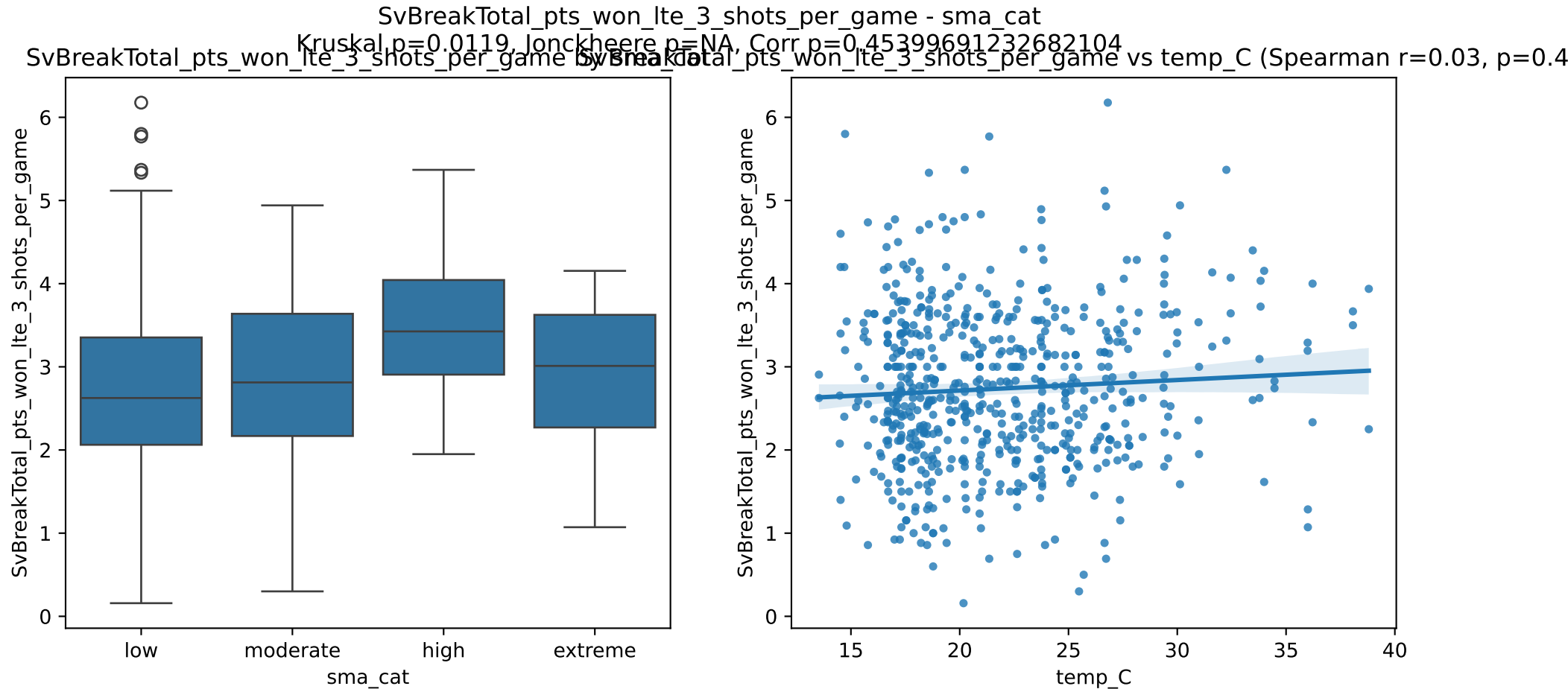
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.213 | 1.0   | 1.0      |
| high     | 0.213   | 1.0   | 0.042 | 1.0      |
| low      | 1.0     | 0.042 | 1.0   | 0.739    |
| moderate | 1.0     | 1.0   | 0.739 | 1.0      |

SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game - wbgt\_cat  
Kruskal p=0.131, Jonckheere p=NA, Corr p=0.5207975895689172  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game by wbgt\_cat  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game vs wbgt (Spearman r=0.03, p=0.52)



Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.131    |
| moderate | 0.131 | 1.0      |

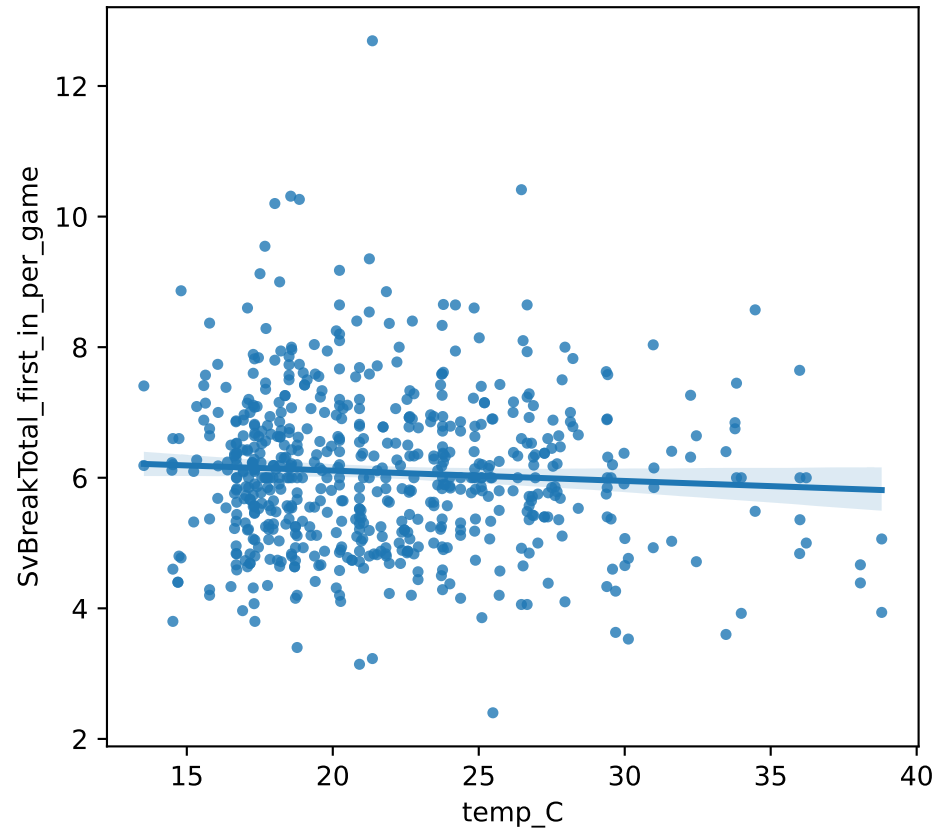
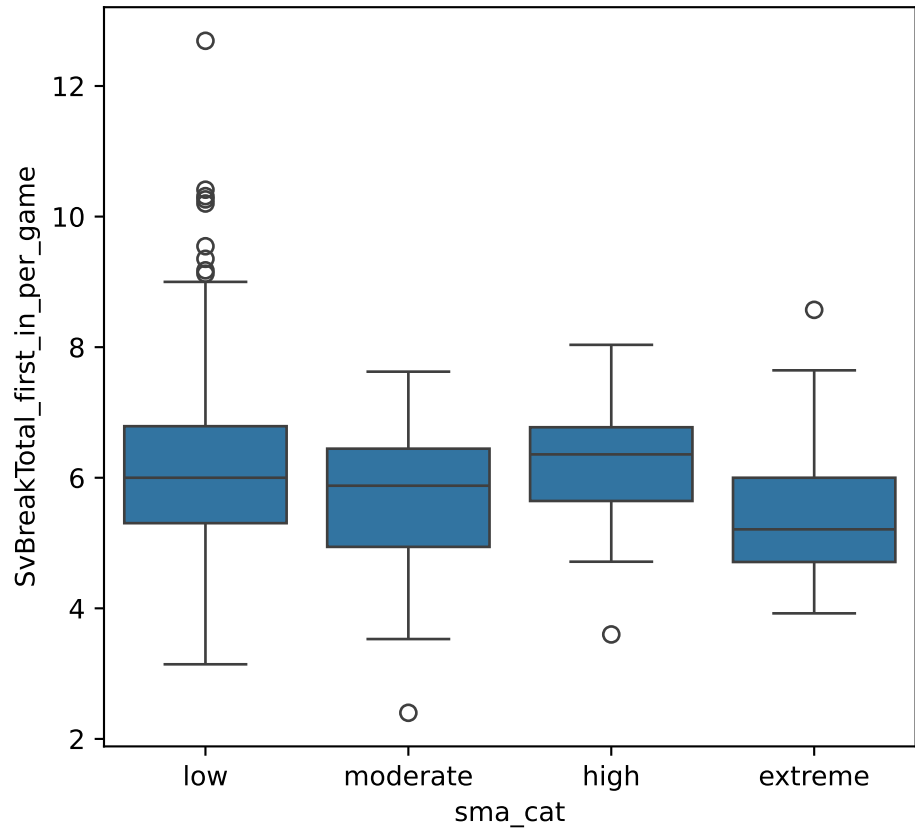


Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_pts\_won\_lte\_3\_shots\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.752 | 1.0   | 1.0      |
| high     | 0.752   | 1.0   | 0.012 | 0.329    |
| low      | 1.0     | 0.012 | 1.0   | 1.0      |
| moderate | 1.0     | 0.329 | 1.0   | 1.0      |



SvBreakTotal\_first\_in\_per\_game - sma\_cat  
Kruskal p=0.0602, lonckheere p=NA, Corr p=0.3605365396623713  
SvBreakTotal\_first\_in\_per\_game by sma\_cat SvBreakTotal\_first\_in\_per\_game vs temp\_C (Spearman r=-0.04, p=0.361)

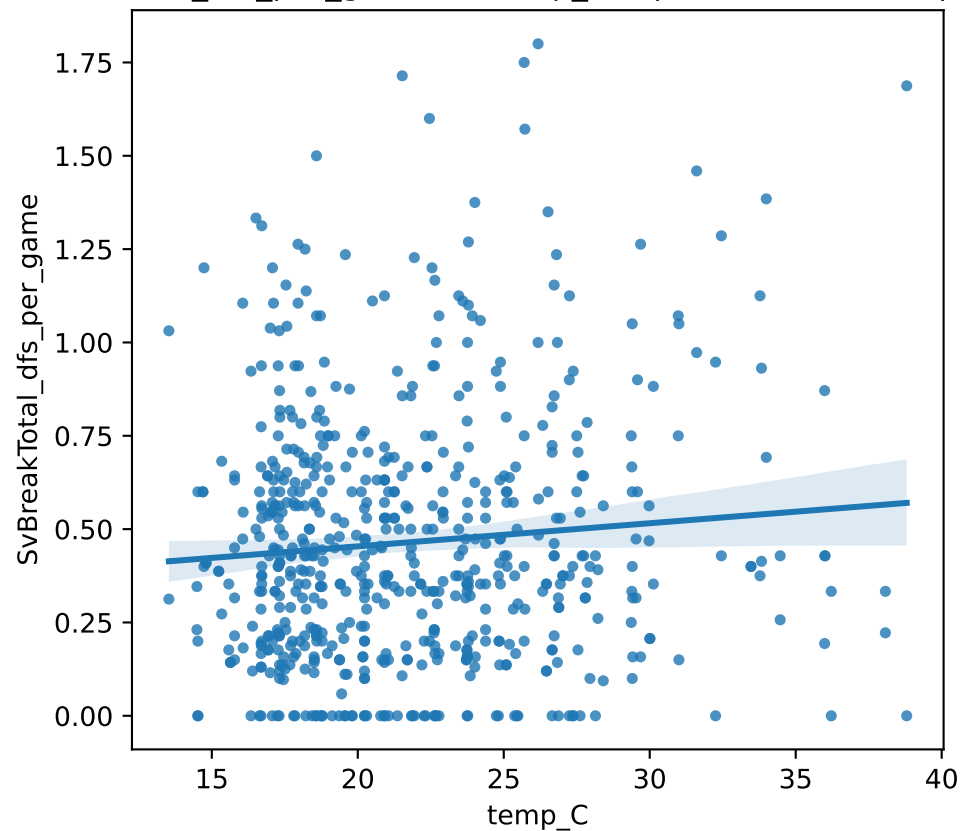


Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_first\_in\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.243 | 0.153 | 1.0      |
| high     | 0.243   | 1.0   | 1.0   | 1.0      |
| low      | 0.153   | 1.0   | 1.0   | 0.845    |
| moderate | 1.0     | 1.0   | 0.845 | 1.0      |

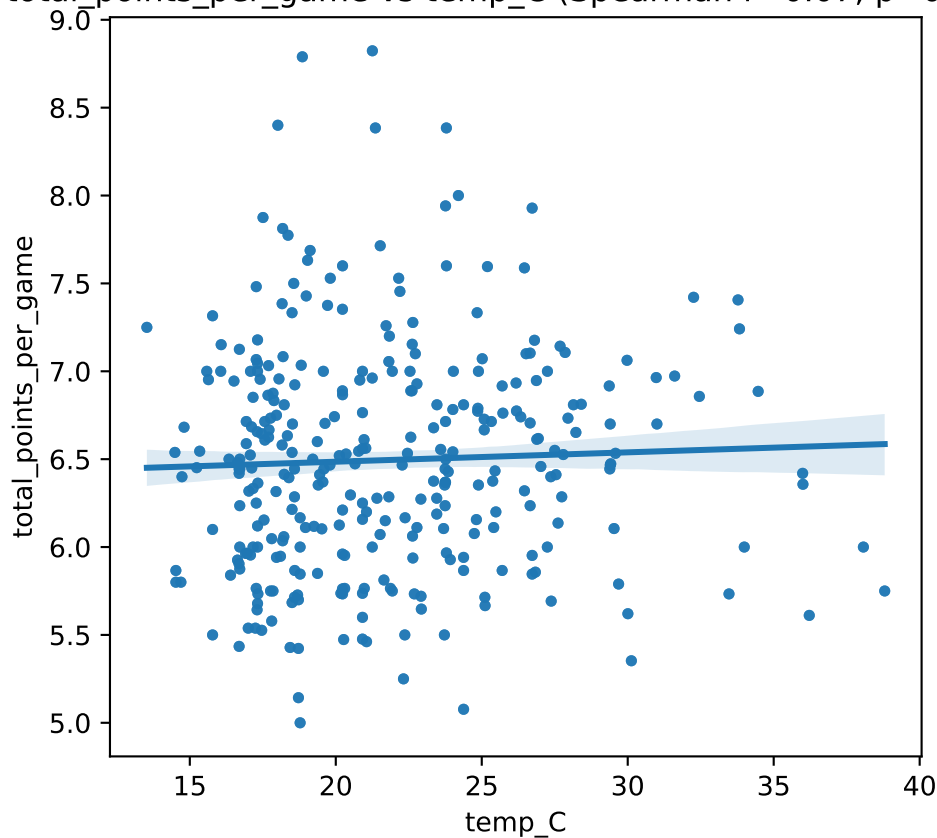
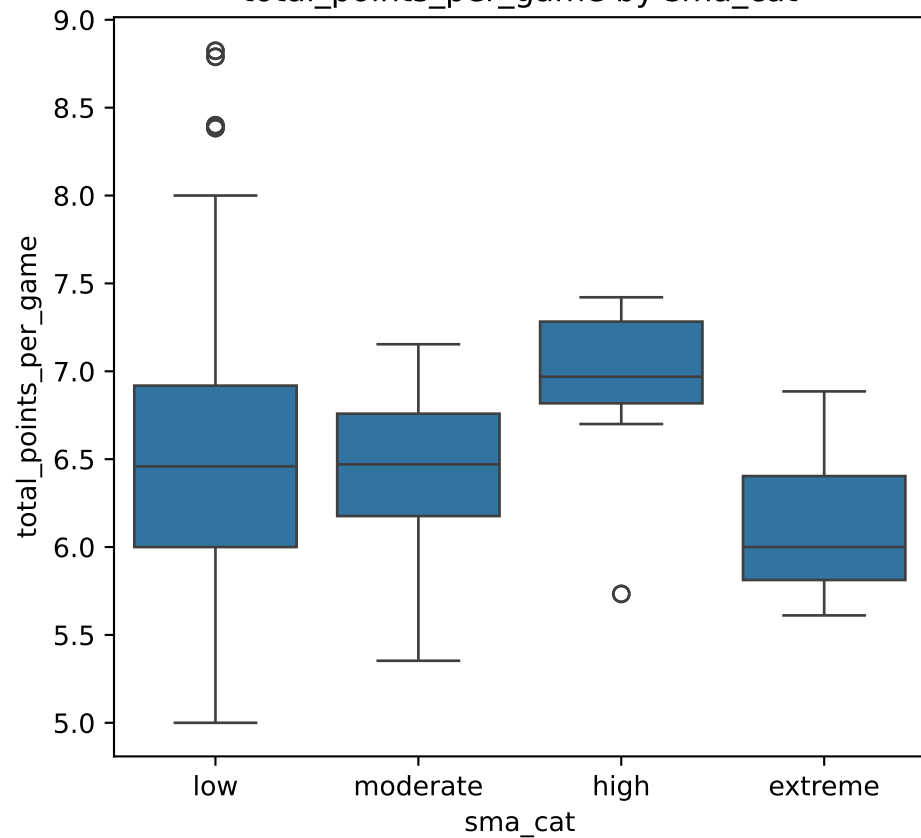
Kruskal p=0.0725, Jonckheere p=NA, Corr p=0.3101526988737424

SvBreakTotal\_dfs\_per\_game vs temp\_C (Spearman  $r=0.04$ ,  $p=0.310$ )



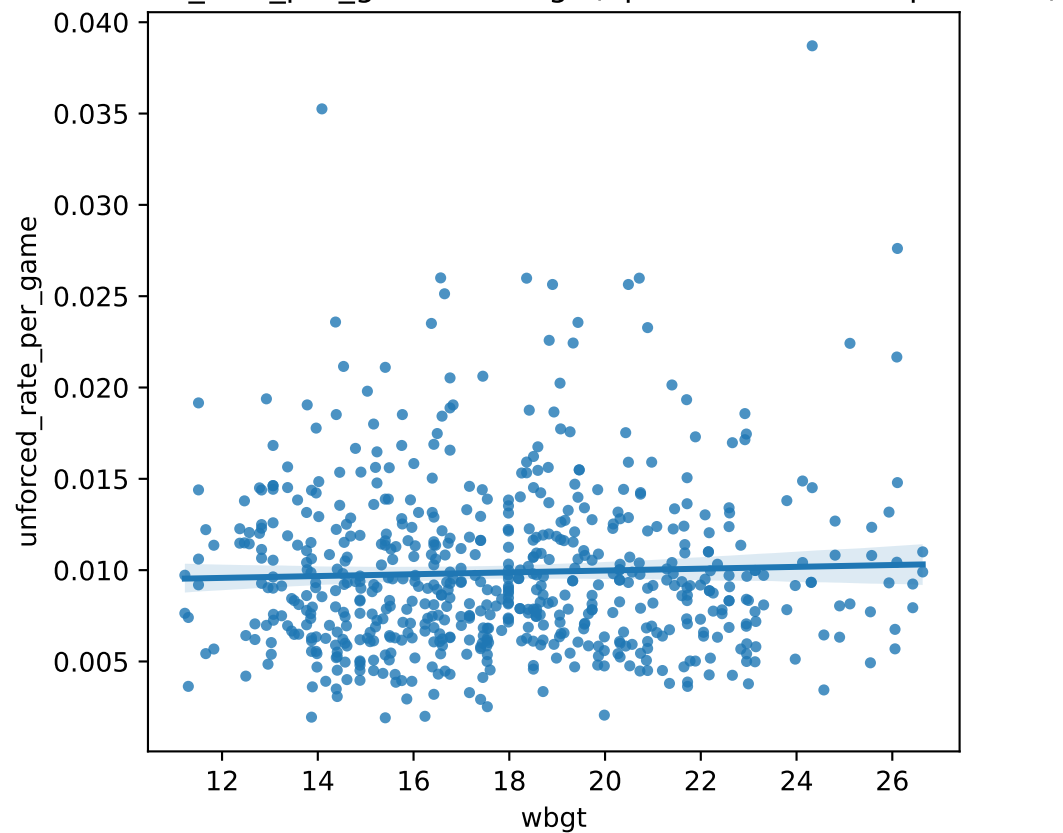
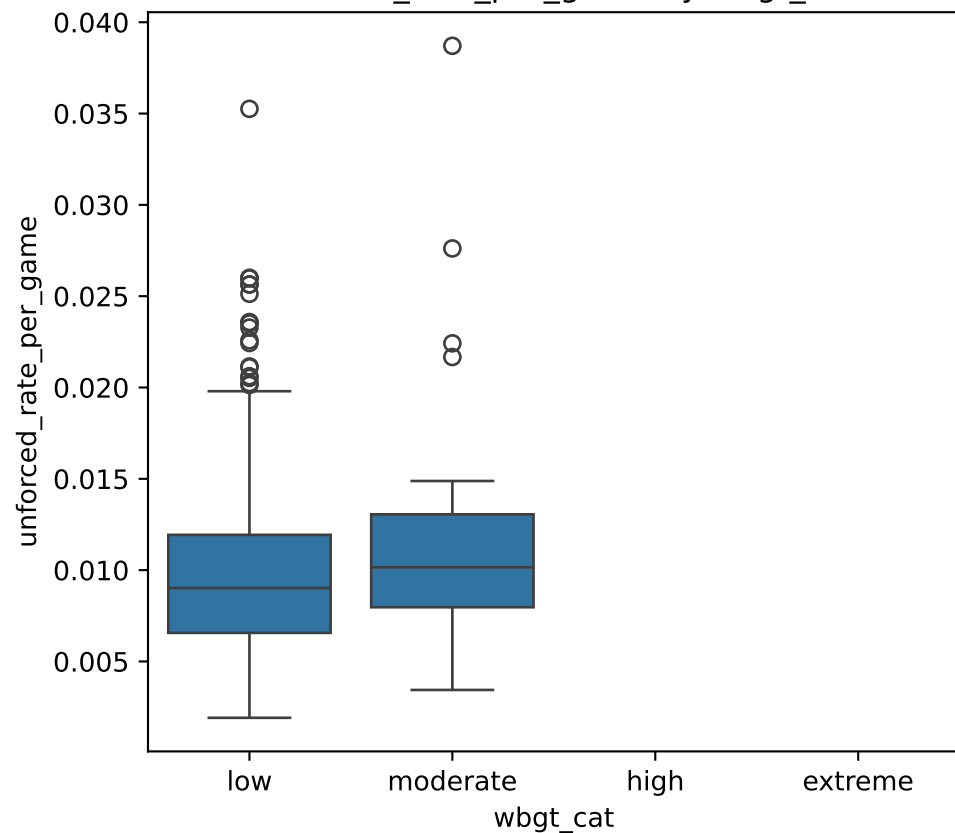
Dunn Post-hoc (p-değerleri)  
SvBreakTotal\_dfs\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.384 | 1.0   | 1.0      |
| high     | 0.384   | 1.0   | 0.051 | 0.142    |
| low      | 1.0     | 0.051 | 1.0   | 1.0      |
| moderate | 1.0     | 0.142 | 1.0   | 1.0      |



Dunn Post-hoc (p-değerleri)  
total\_points\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.001 | 0.176 | 0.461    |
| high     | 0.001   | 1.0   | 0.014 | 0.057    |
| low      | 0.176   | 0.014 | 1.0   | 1.0      |
| moderate | 0.461   | 0.057 | 1.0   | 1.0      |

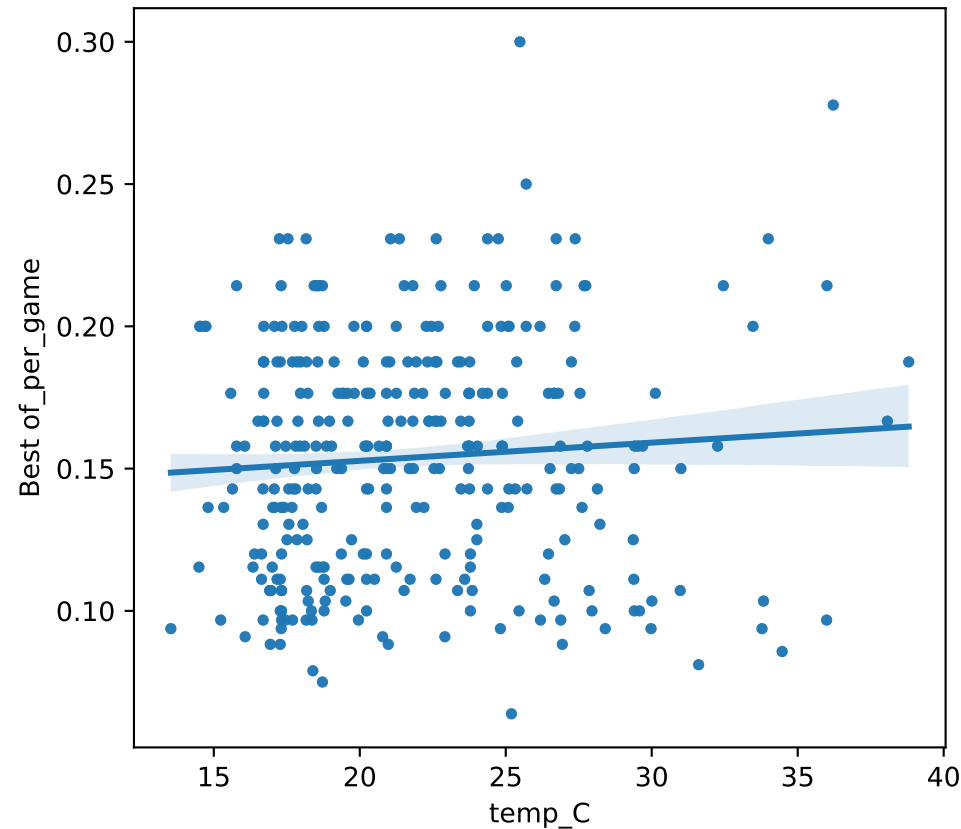
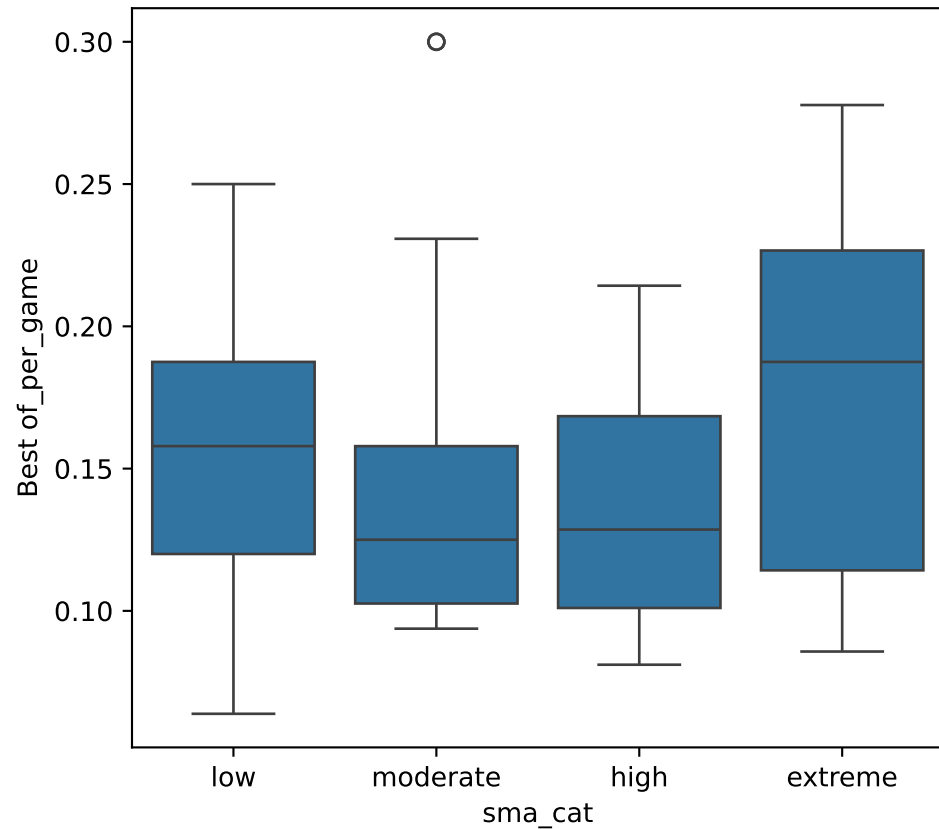


Dunn Post-hoc (p-değerleri)  
unforced\_rate\_per\_game by wbgt\_cat

|          | low   | moderate |
|----------|-------|----------|
| low      | 1.0   | 0.103    |
| moderate | 0.103 | 1.0      |



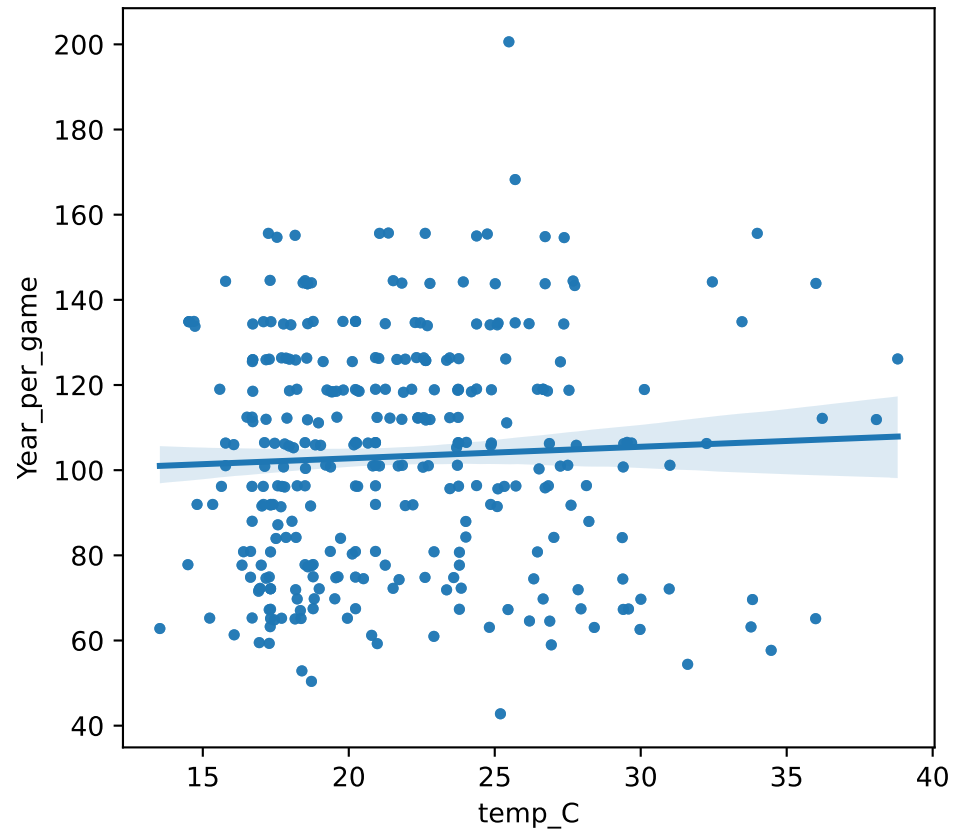
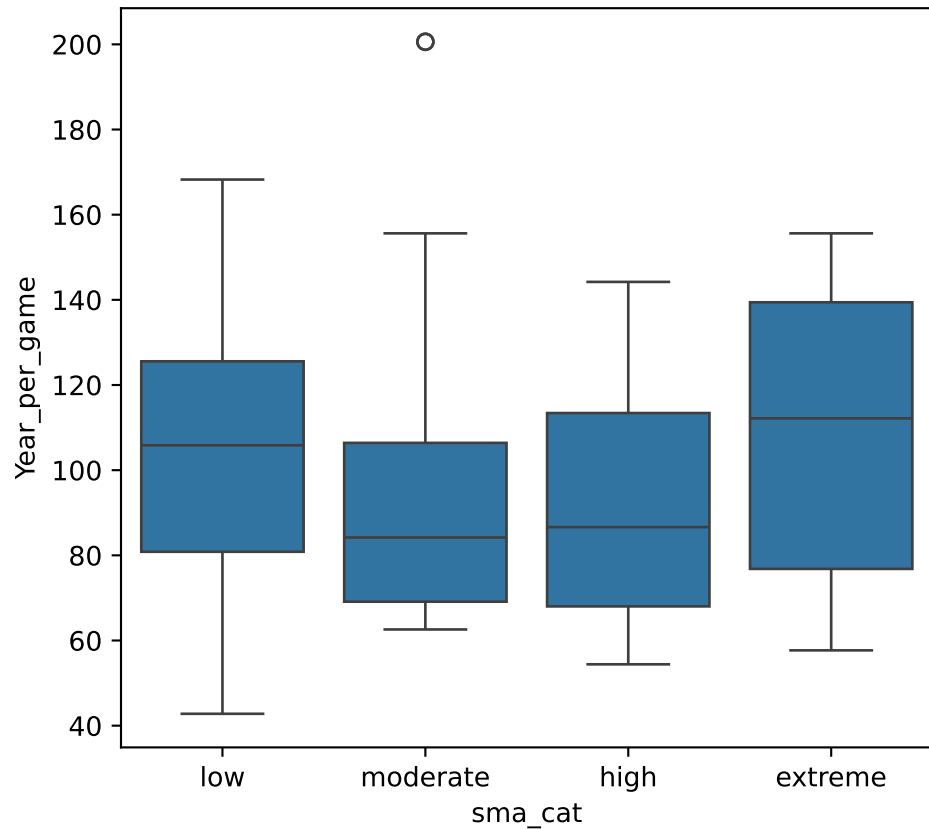
Best of\_per\_game - sma\_cat  
Kruskal p=0.0171, Jonckheere p=NA, Corr p=0.053862518715437915  
Best of\_per\_game by sma\_cat  
Best of\_per\_game vs temp\_C (Spearman r=0.08, p=0.054)



Dunn Post-hoc (p-değerleri)  
Best of\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.165 | 0.767 | 0.057    |
| high     | 0.165   | 1.0   | 0.718 | 1.0      |
| low      | 0.767   | 0.718 | 1.0   | 0.126    |
| moderate | 0.057   | 1.0   | 0.126 | 1.0      |

Year\_per\_game - sma\_cat  
Kruskal p=0.0415, Jonckheere p=NA, Corr p=0.09302506158868447  
Year\_per\_game by sma\_cat  
Year\_per\_game vs temp\_C (Spearman r=0.07, p=0.093)

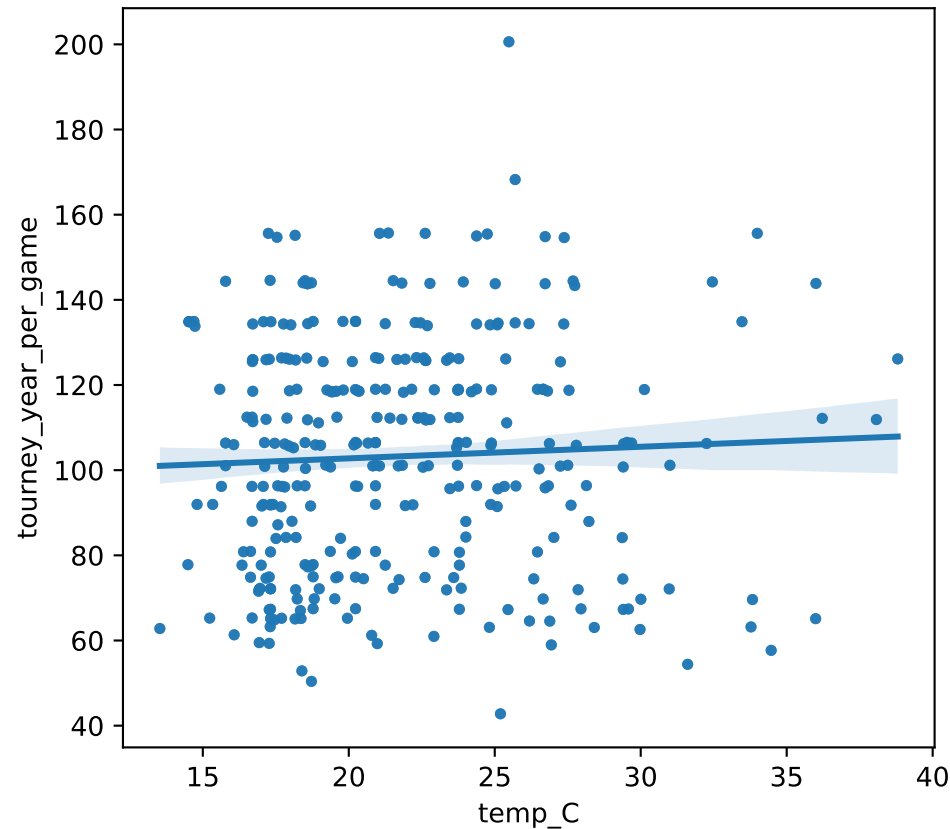
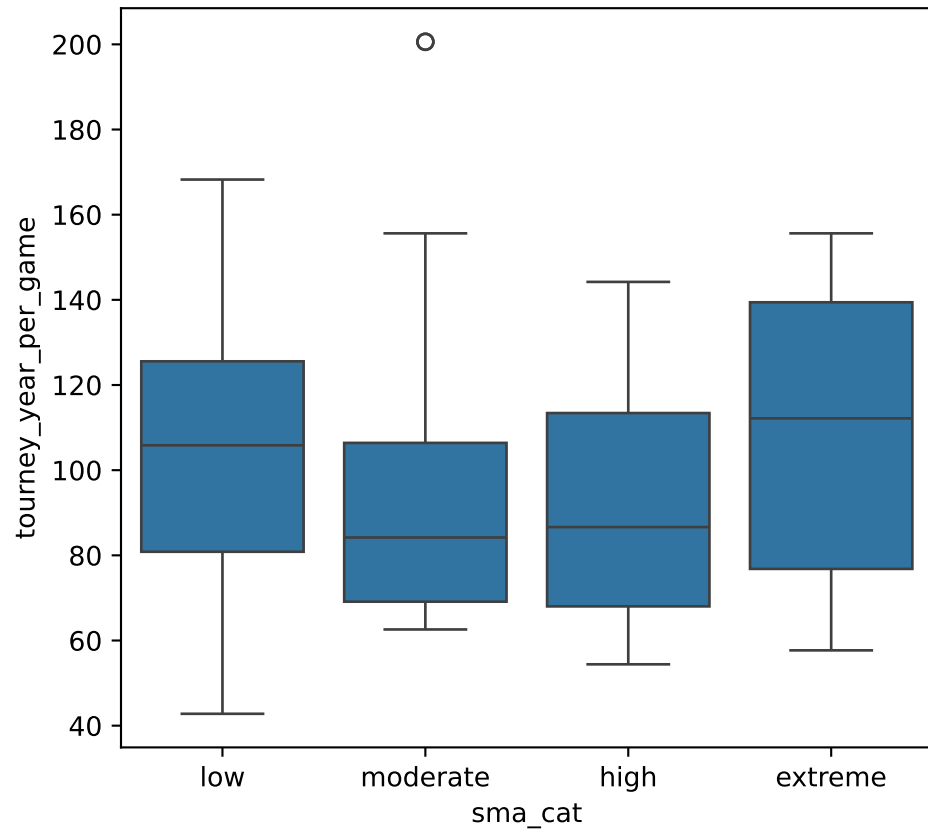


# Dunn Post-hoc (p-değerleri)

## Year\_per\_game by sma\_cat

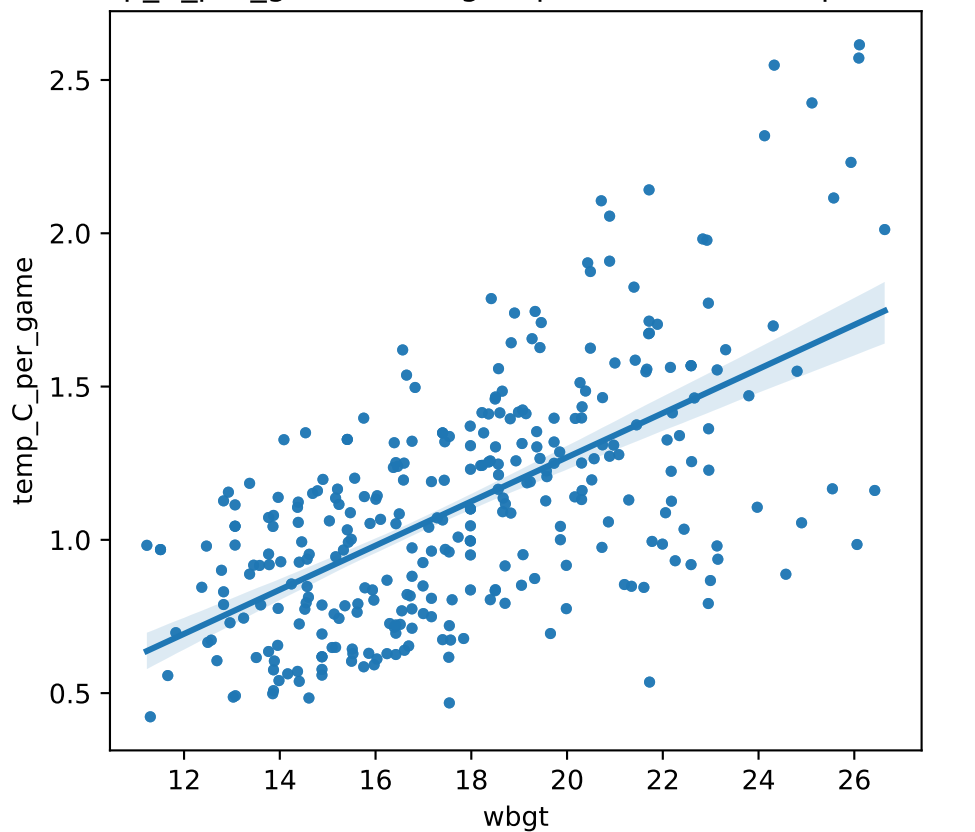
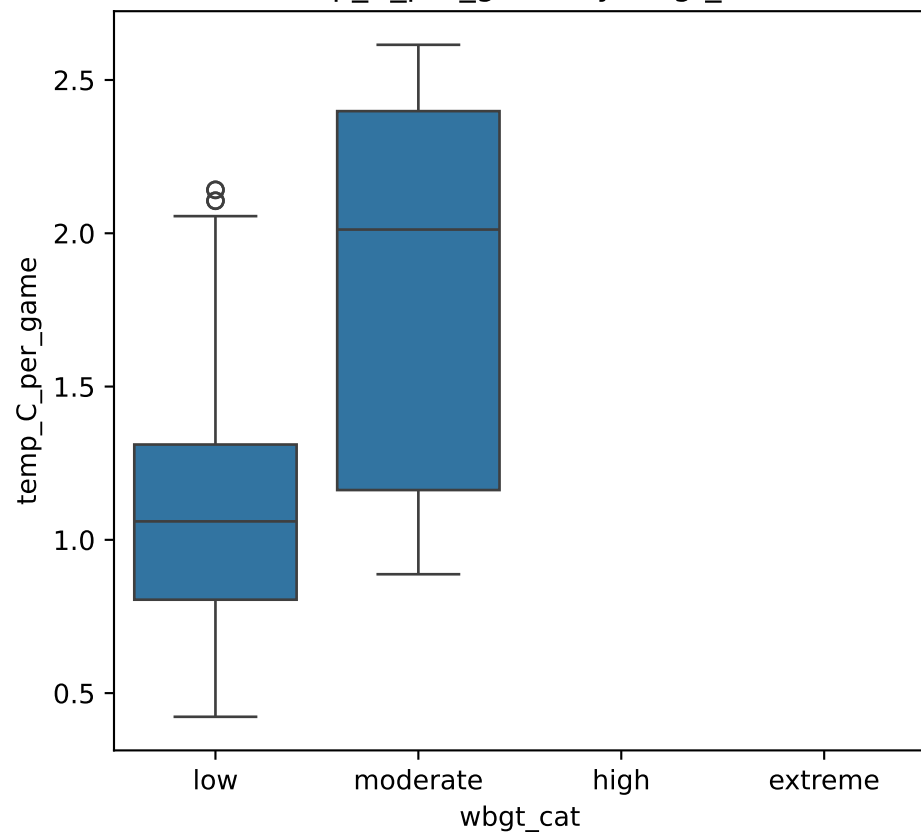
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.609 | 1.0   | 0.275    |
| high     | 0.609   | 1.0   | 0.8   | 1.0      |
| low      | 1.0     | 0.8   | 1.0   | 0.123    |
| moderate | 0.275   | 1.0   | 0.123 | 1.0      |

tourney\_year\_per\_game - sma\_cat  
Kruskal p=0.0415, Jonckheere p=NA, Corr p=0.09302506158868447  
tourney\_year\_per\_game by sma\_cat  
tourney\_year\_per\_game vs temp\_C (Spearman r=0.07, p=0.093)



Dunn Post-hoc (p-değerleri)  
tourney\_year\_per\_game by sma\_cat

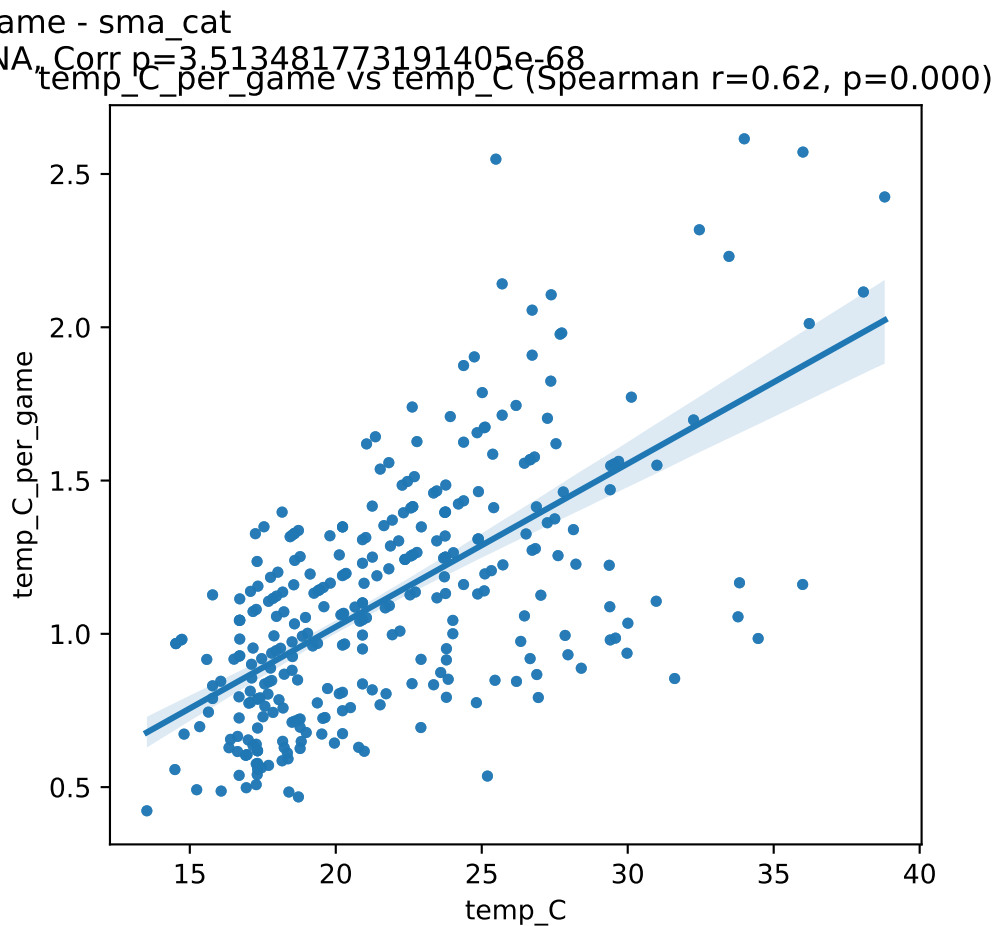
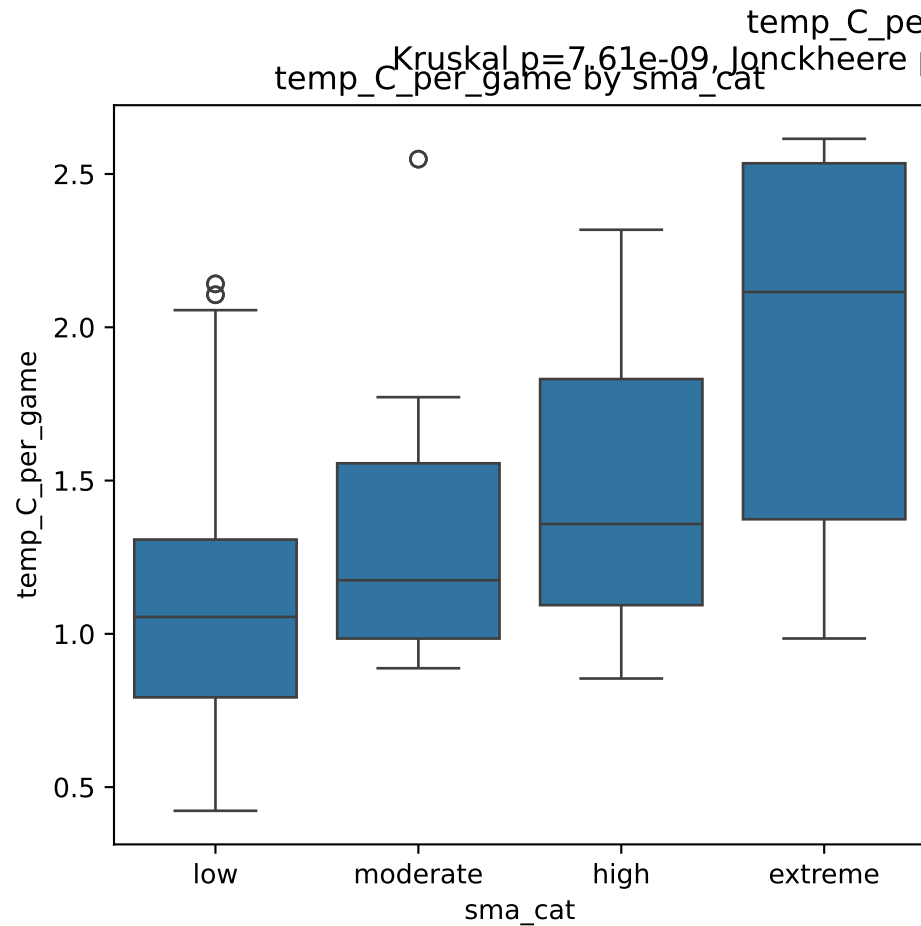
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.609 | 1.0   | 0.275    |
| high     | 0.609   | 1.0   | 0.8   | 1.0      |
| low      | 1.0     | 0.8   | 1.0   | 0.123    |
| moderate | 0.275   | 1.0   | 0.123 | 1.0      |



Dunn Post-hoc (p-değerleri)  
temp\_C\_per\_game by wbgt\_cat

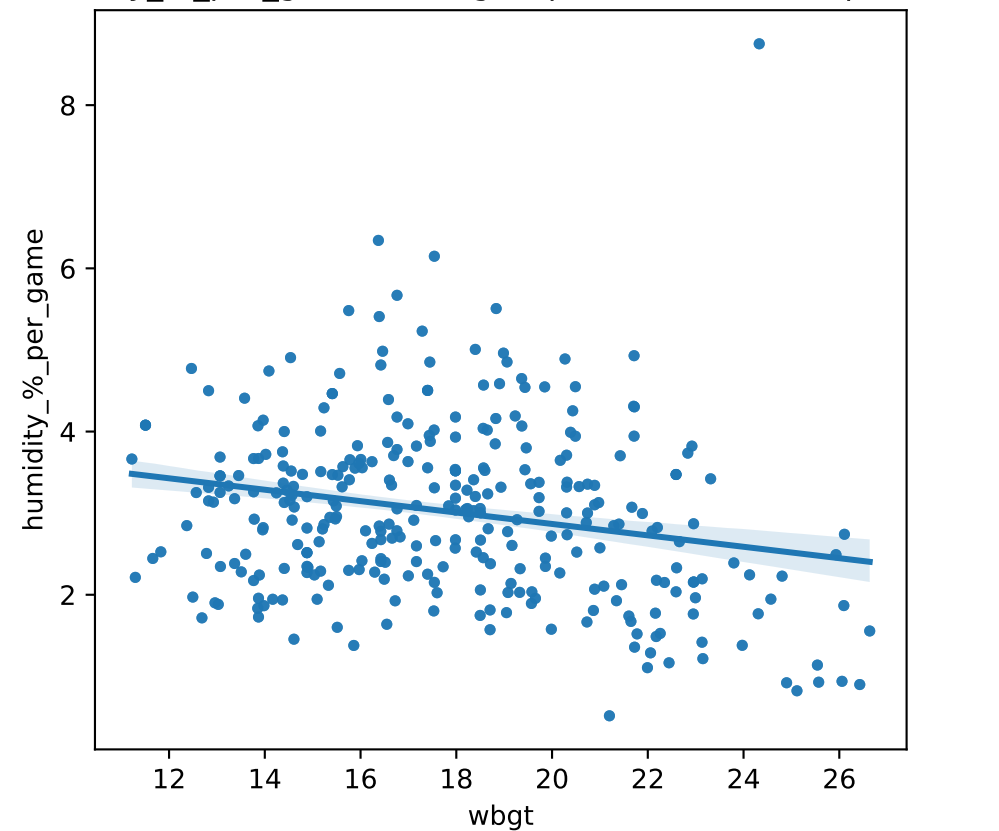
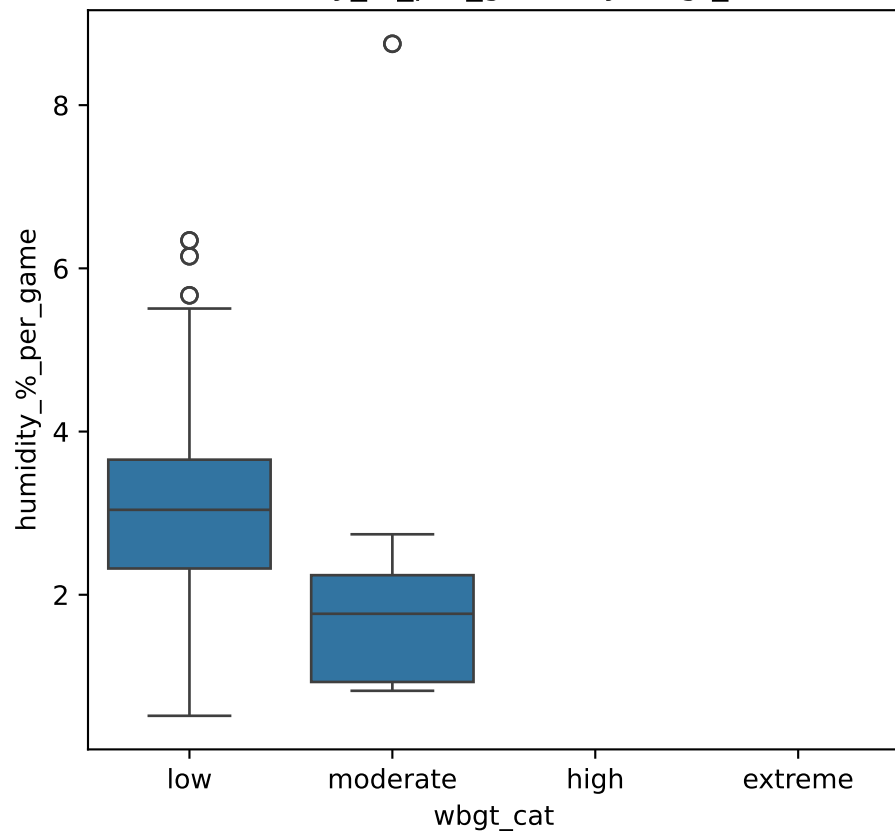
|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |





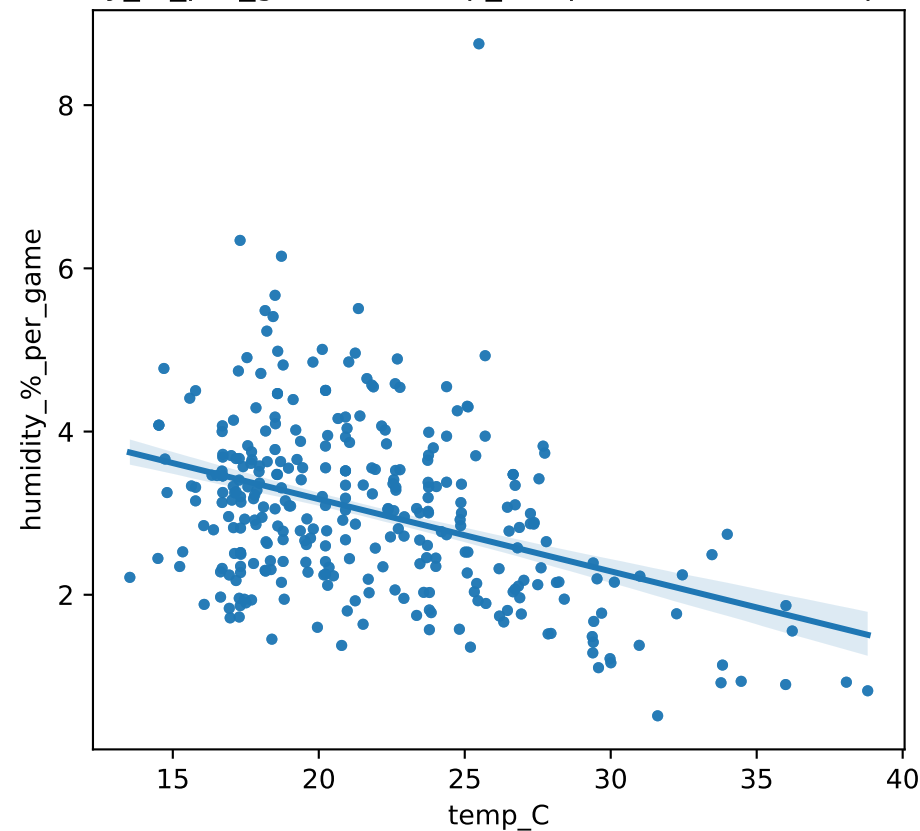
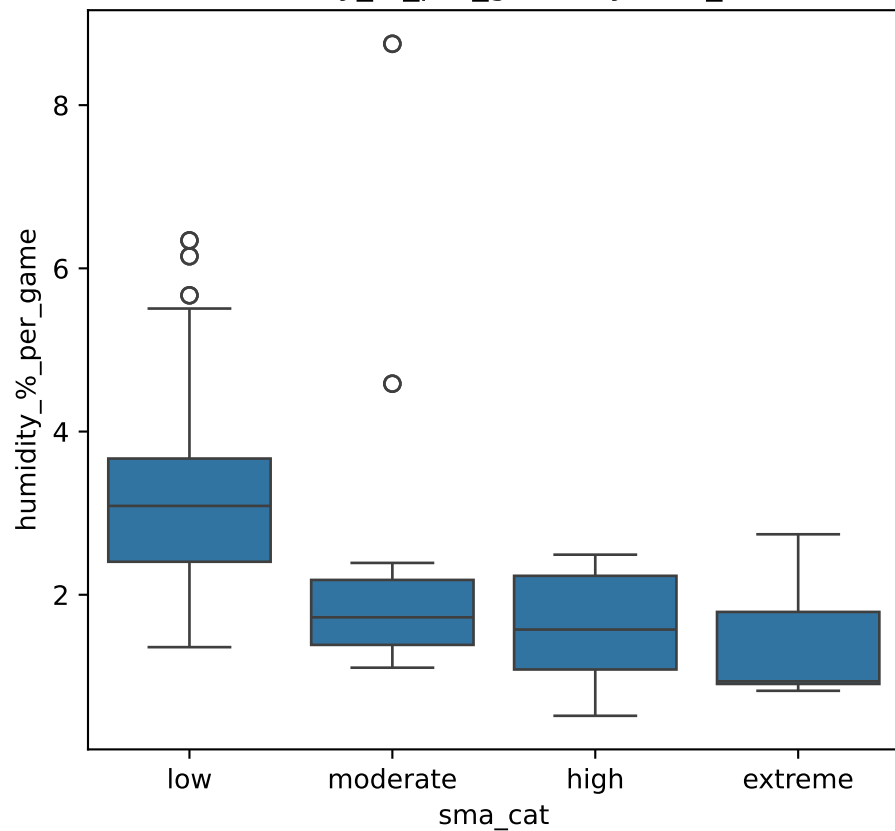
Dunn Post-hoc (p-değerleri)  
temp\_C\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 1.0   | 0.0   | 0.185    |
| high     | 1.0     | 1.0   | 0.009 | 1.0      |
| low      | 0.0     | 0.009 | 1.0   | 0.007    |
| moderate | 0.185   | 1.0   | 0.007 | 1.0      |



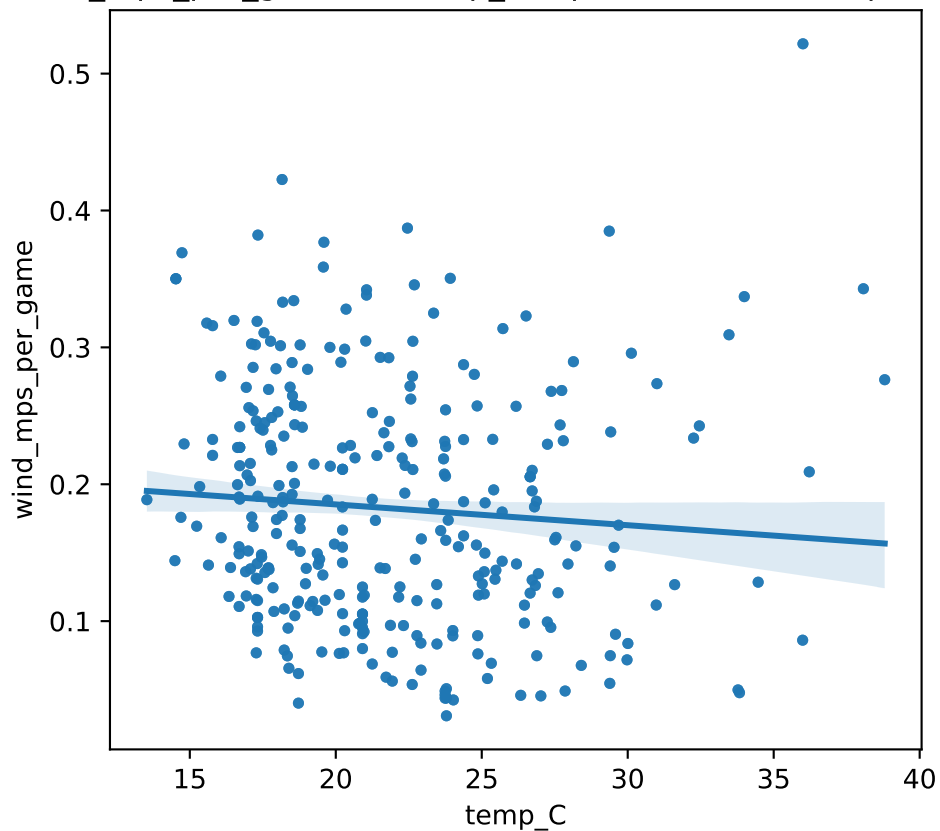
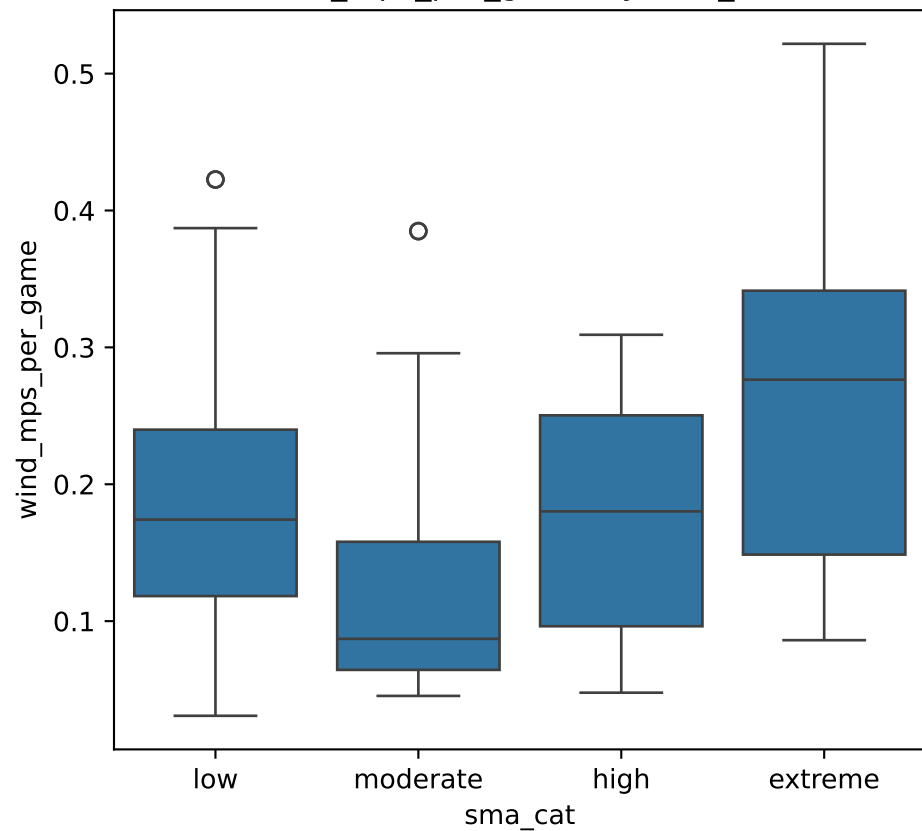
Dunn Post-hoc (p-değerleri)  
humidity\_%\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



Dunn Post-hoc (p-değerleri)  
humidity\_%\_per\_game by sma\_cat

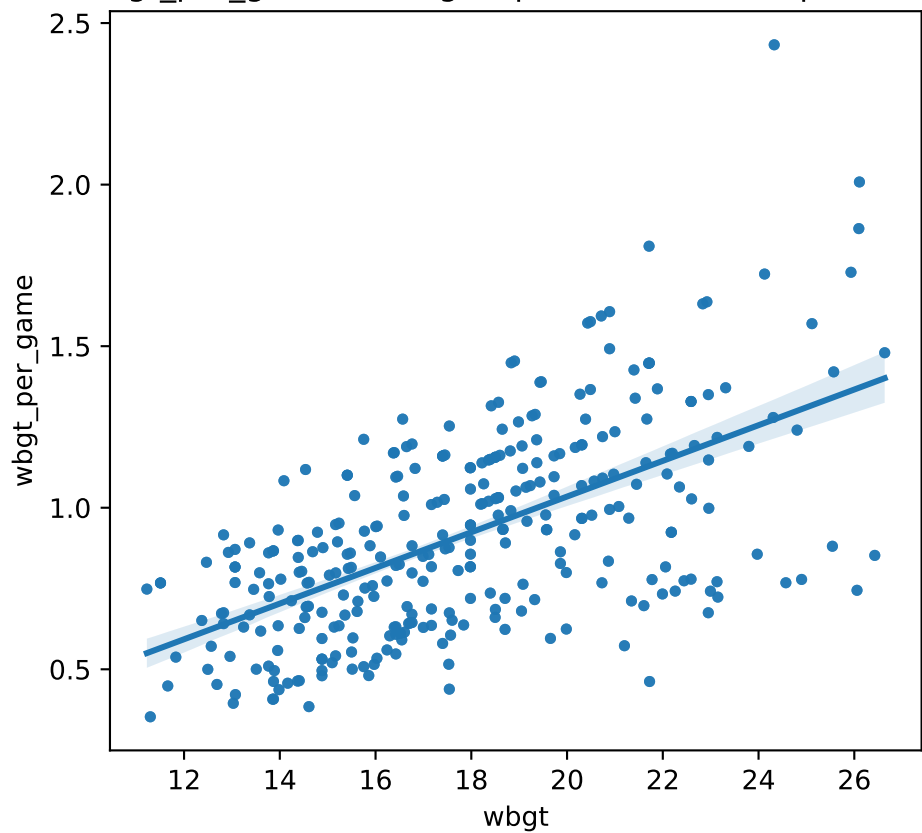
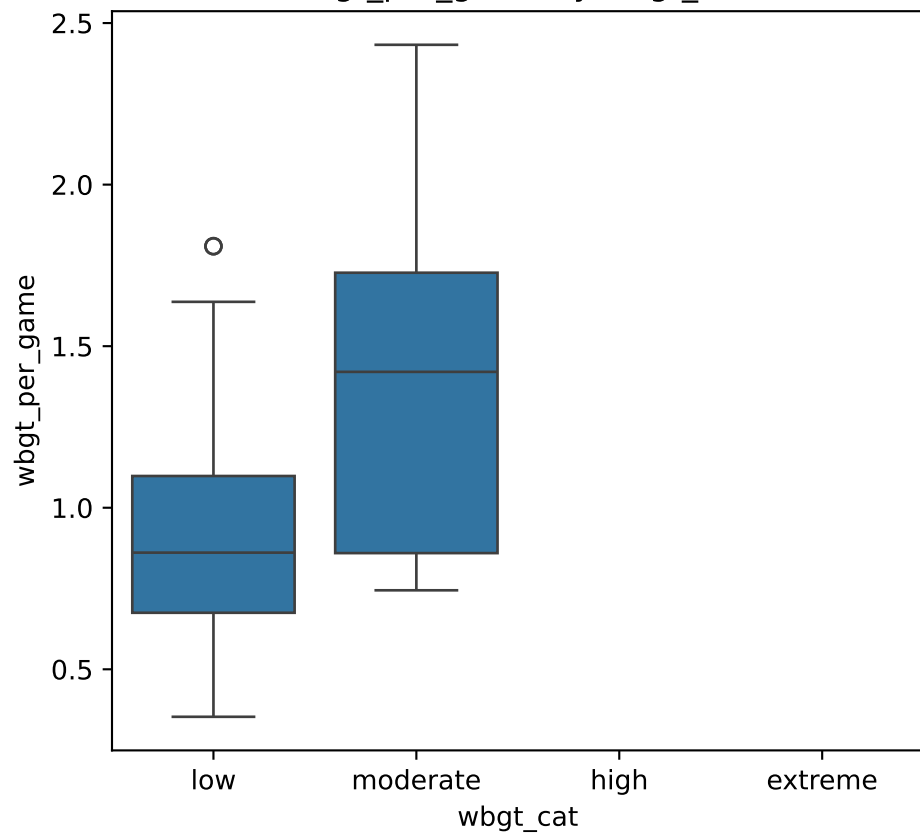
|          | extreme | high | low | moderate |
|----------|---------|------|-----|----------|
| extreme  | 1.0     | 1.0  | 0.0 | 0.997    |
| high     | 1.0     | 1.0  | 0.0 | 1.0      |
| low      | 0.0     | 0.0  | 1.0 | 0.0      |
| moderate | 0.997   | 1.0  | 0.0 | 1.0      |



Dunn Post-hoc (p-değerleri)  
wind\_mps\_per\_game by sma\_cat

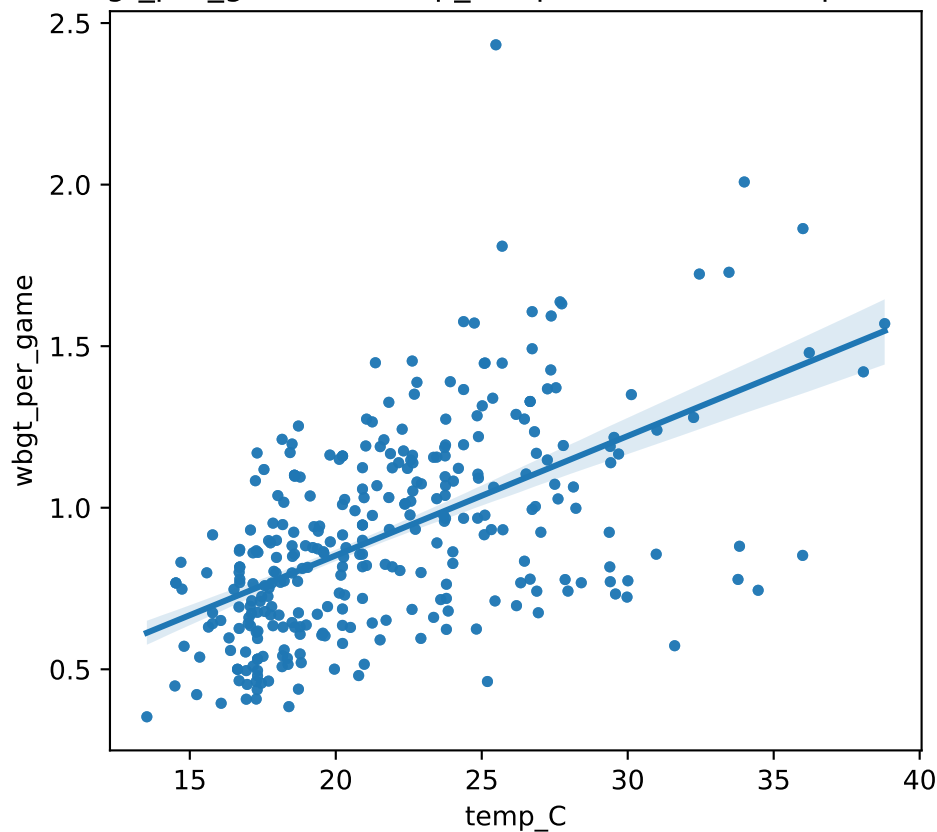
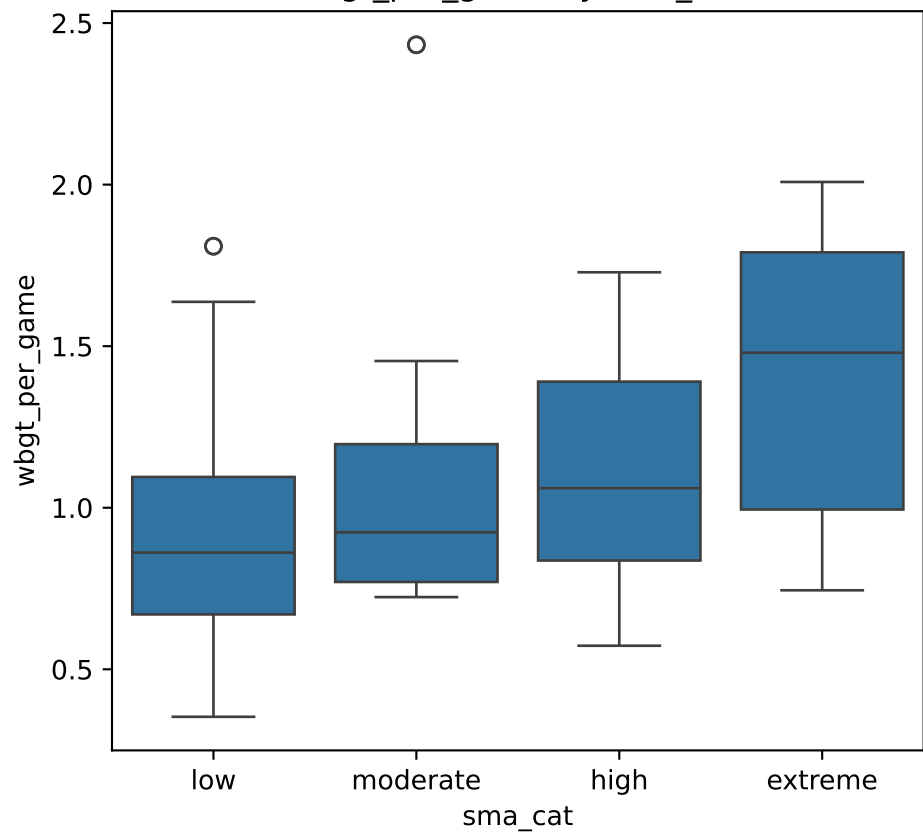
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.292 | 0.124 | 0.0      |
| high     | 0.292   | 1.0   | 1.0   | 0.3      |
| low      | 0.124   | 1.0   | 1.0   | 0.001    |
| moderate | 0.0     | 0.3   | 0.001 | 1.0      |





# Dunn Post-hoc (p-değerleri) wbgt\_per\_game by wbgt\_cat

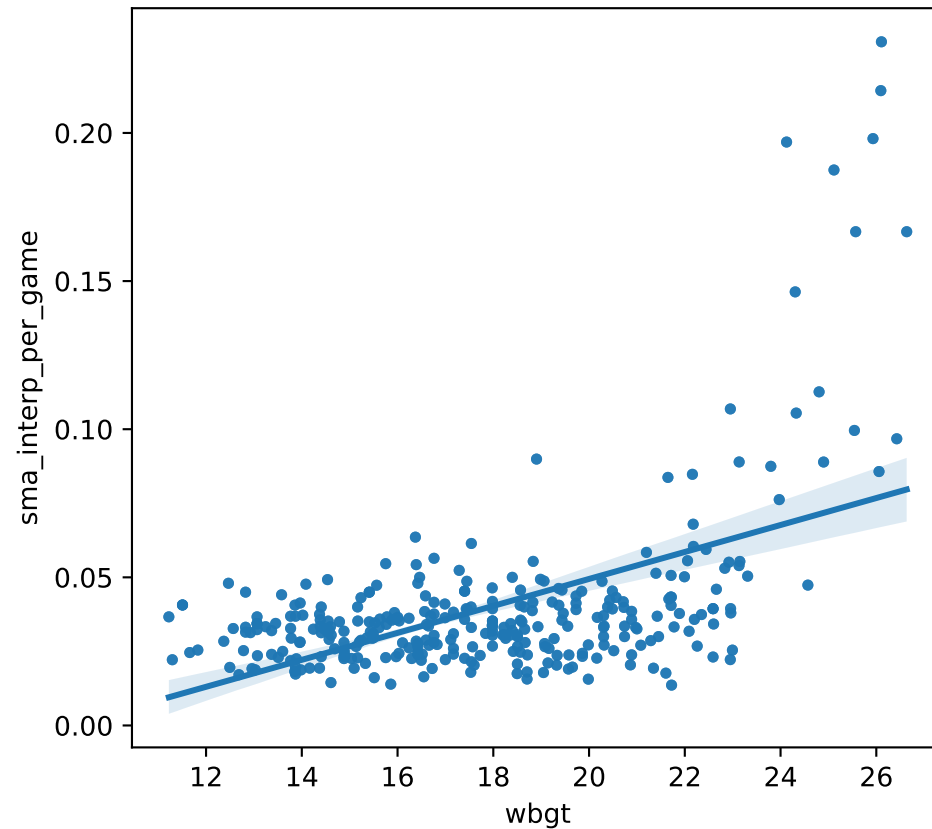
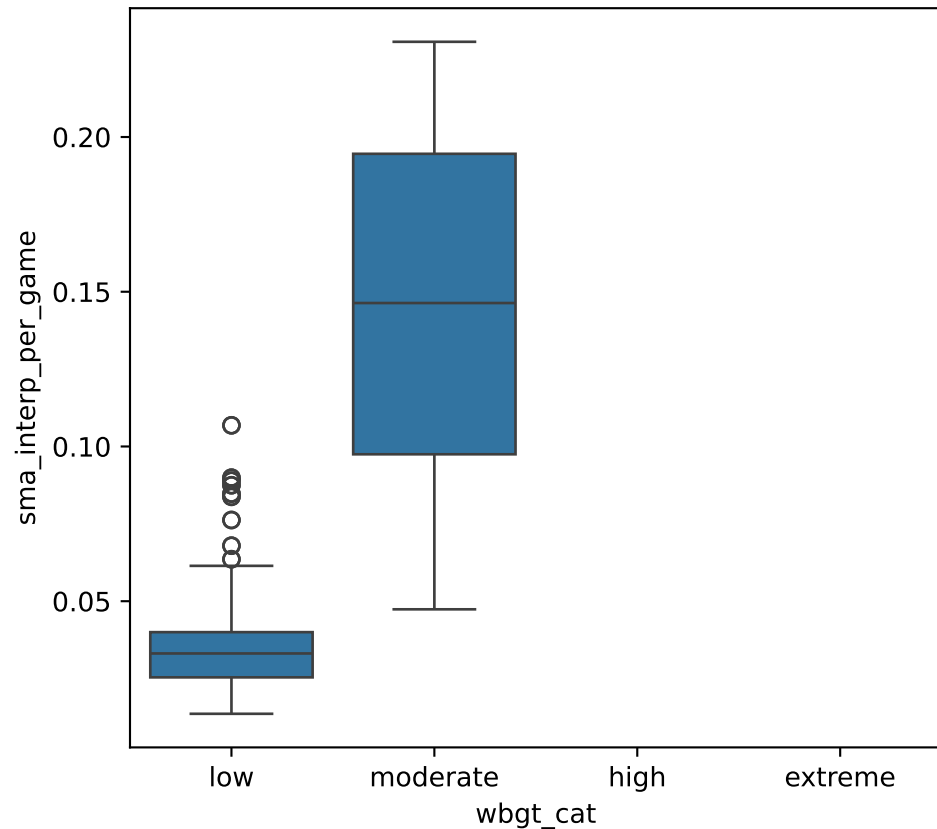
|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |



# Dunn Post-hoc (p-değerleri) wbgt\_per\_game by sma\_cat

|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.913 | 0.0   | 0.205    |
| high     | 0.913   | 1.0   | 0.123 | 1.0      |
| low      | 0.0     | 0.123 | 1.0   | 0.103    |
| moderate | 0.205   | 1.0   | 0.103 | 1.0      |

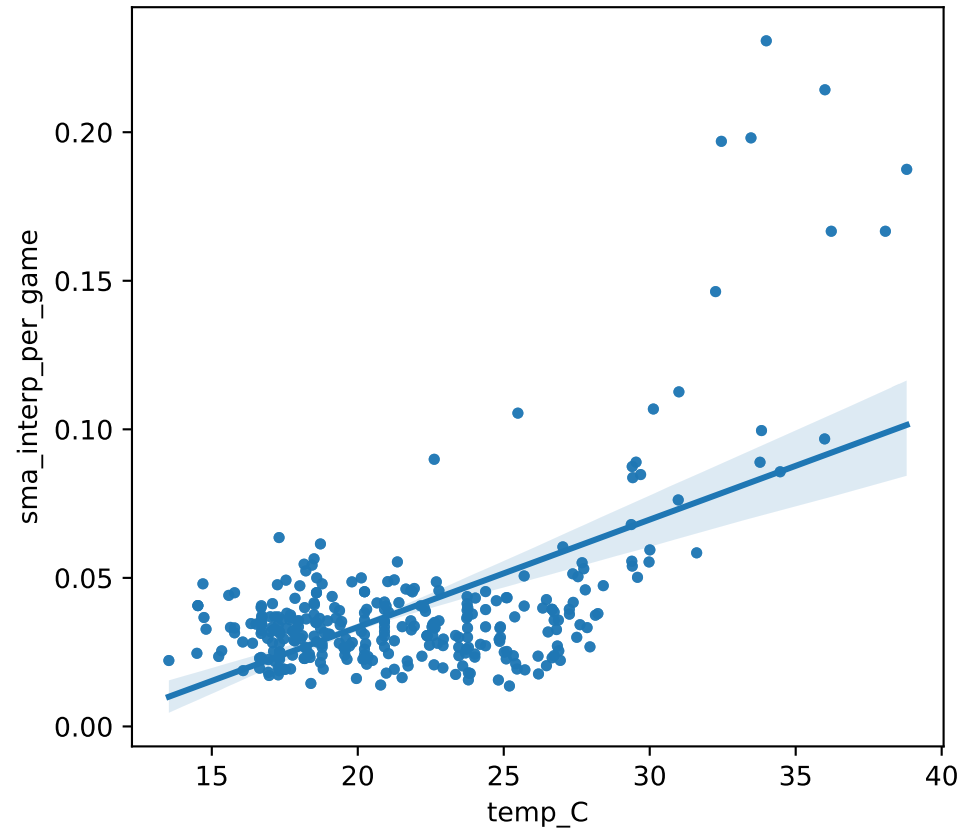
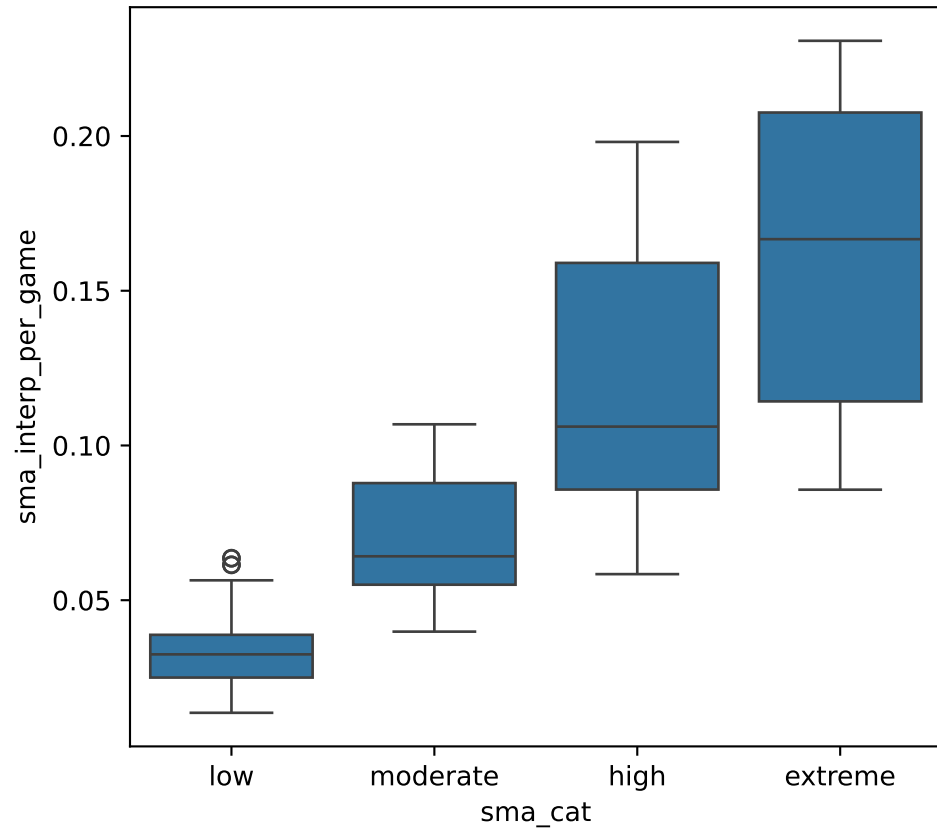
sma\_interp\_per\_game - wbgt\_cat  
Kruskal p=1.33e-19, Jonckheere p=NA, Corr p=3.779616108098556e-22  
sma\_interp\_per\_game by wbgt\_cat  
sma\_interp\_per\_game vs wbgt (Spearman r=0.37, p=0.000)



Dunn Post-hoc (p-değerleri)  
sma\_interp\_per\_game by wbgt\_cat

|          | low | moderate |
|----------|-----|----------|
| low      | 1.0 | 0.0      |
| moderate | 0.0 | 1.0      |

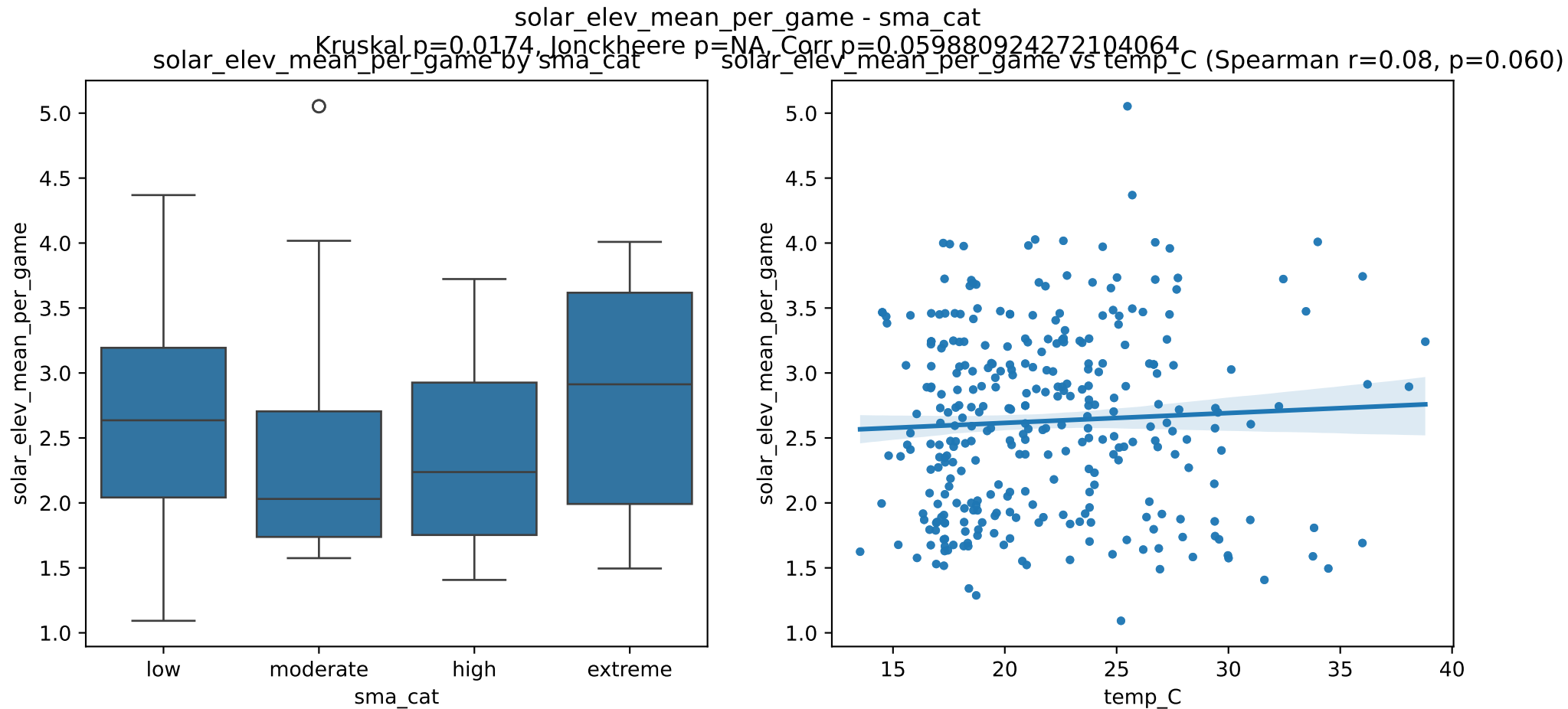
sma\_interp\_per\_game - sma\_cat  
Kruskal p=2.56e-34, Jonckheere p=NA, Corr p=1.1761798515763593e-12  
sma\_interp\_per\_game by sma\_cat  
sma\_interp\_per\_game vs temp\_C (Spearman r=0.28, p=0.000)



Dunn Post-hoc (p-değerleri)  
sma\_interp\_per\_game by sma\_cat

|          | extreme | high | low | moderate |
|----------|---------|------|-----|----------|
| extreme  | 1.0     | 1.0  | 0.0 | 1.0      |
| high     | 1.0     | 1.0  | 0.0 | 1.0      |
| low      | 0.0     | 0.0  | 1.0 | 0.0      |
| moderate | 1.0     | 1.0  | 0.0 | 1.0      |



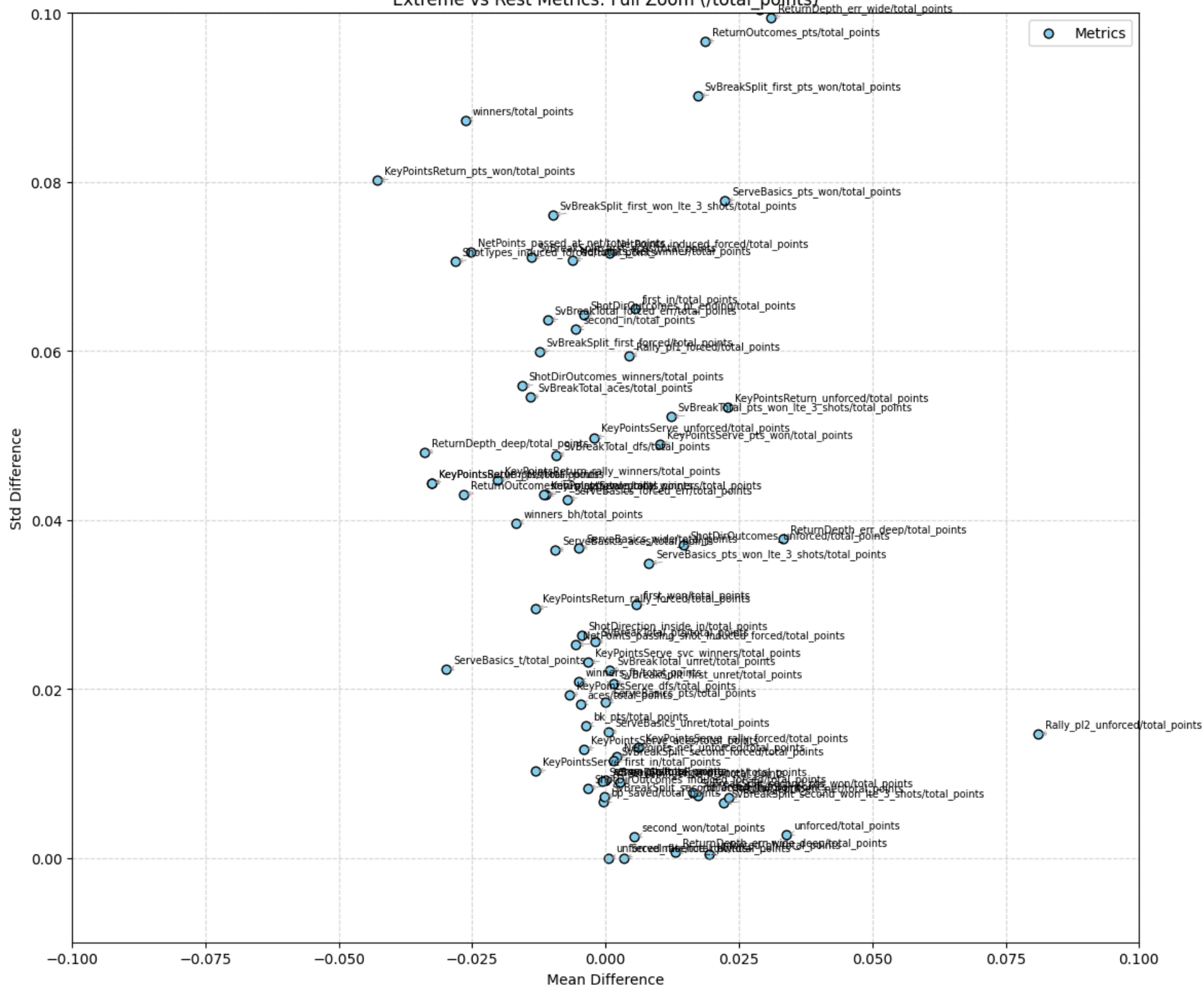


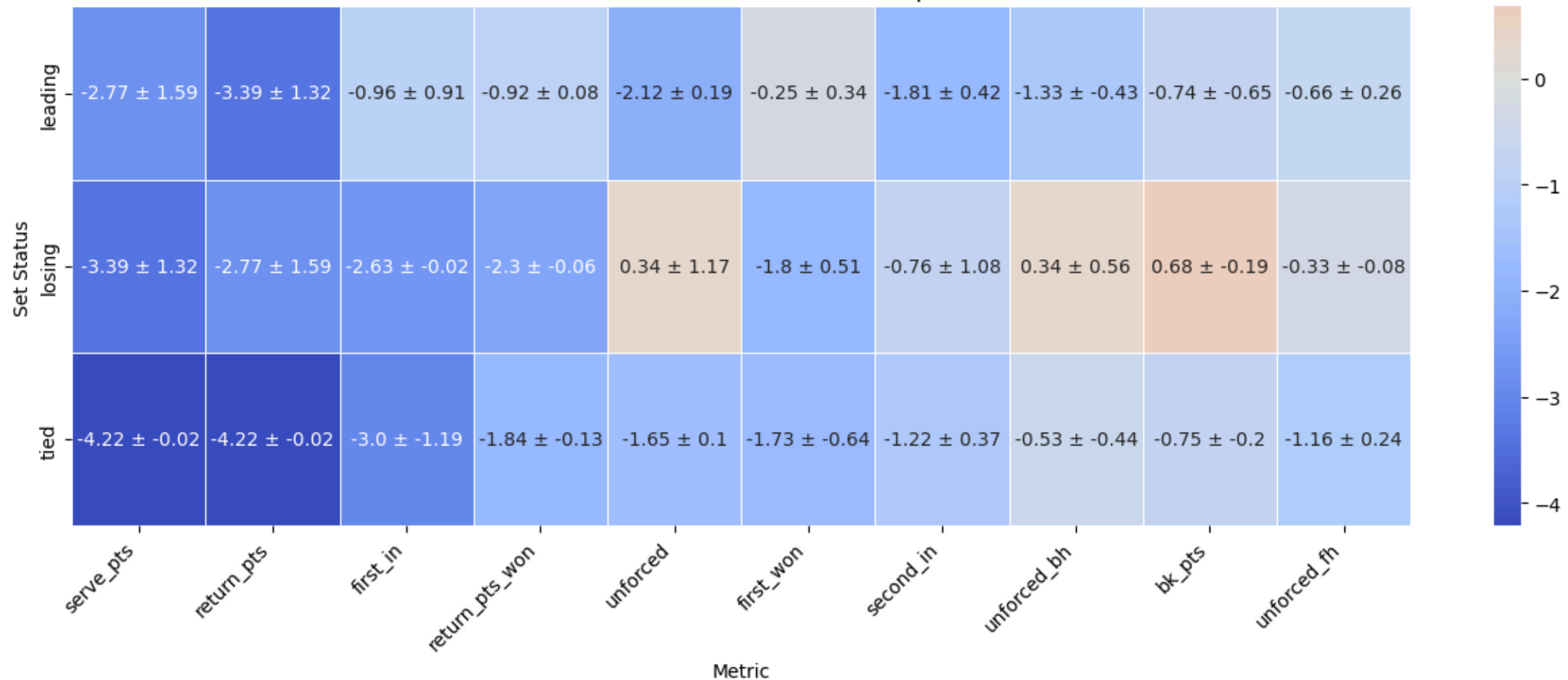
Dunn Post-hoc (p-değerleri)  
solar\_elev\_mean\_per\_game by sma\_cat

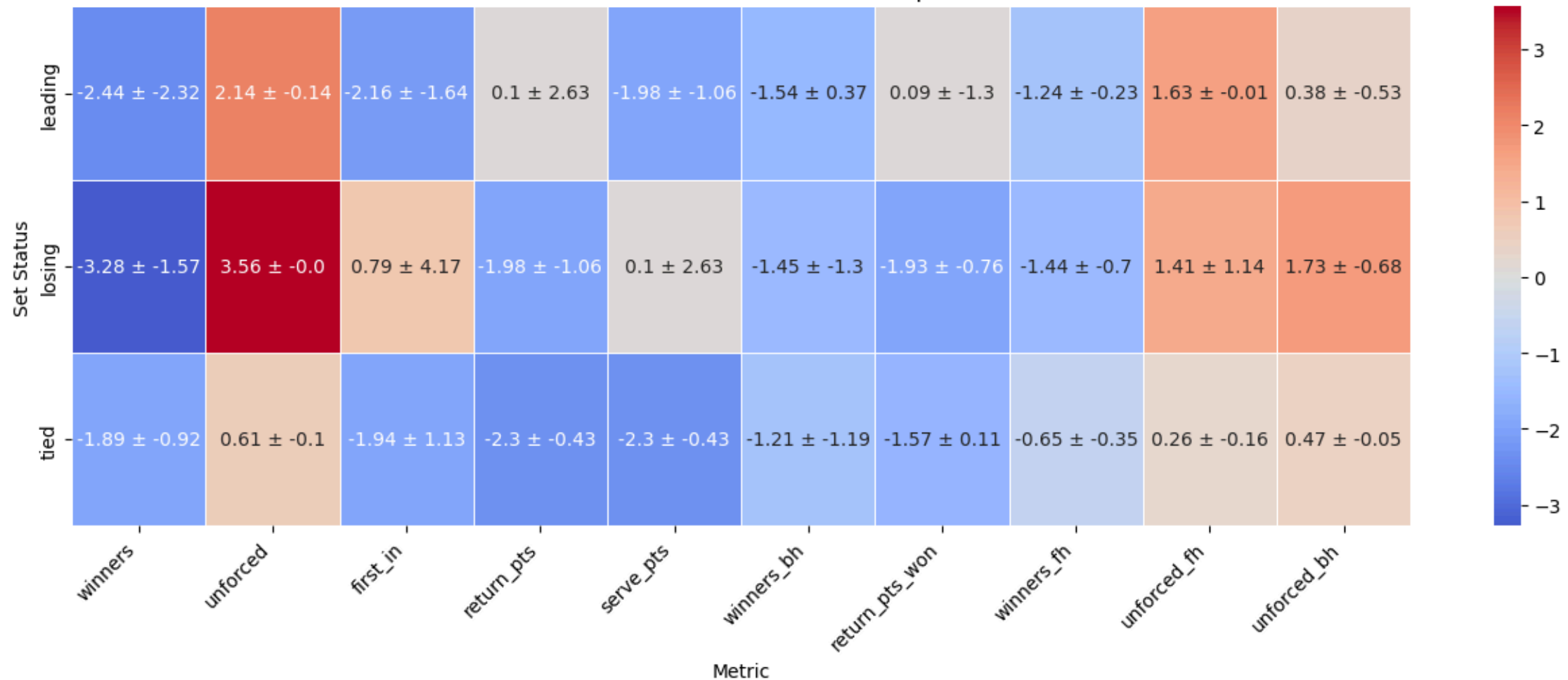
|          | extreme | high  | low   | moderate |
|----------|---------|-------|-------|----------|
| extreme  | 1.0     | 0.528 | 1.0   | 0.093    |
| high     | 0.528   | 1.0   | 1.0   | 1.0      |
| low      | 1.0     | 1.0   | 1.0   | 0.043    |
| moderate | 0.093   | 1.0   | 0.043 | 1.0      |



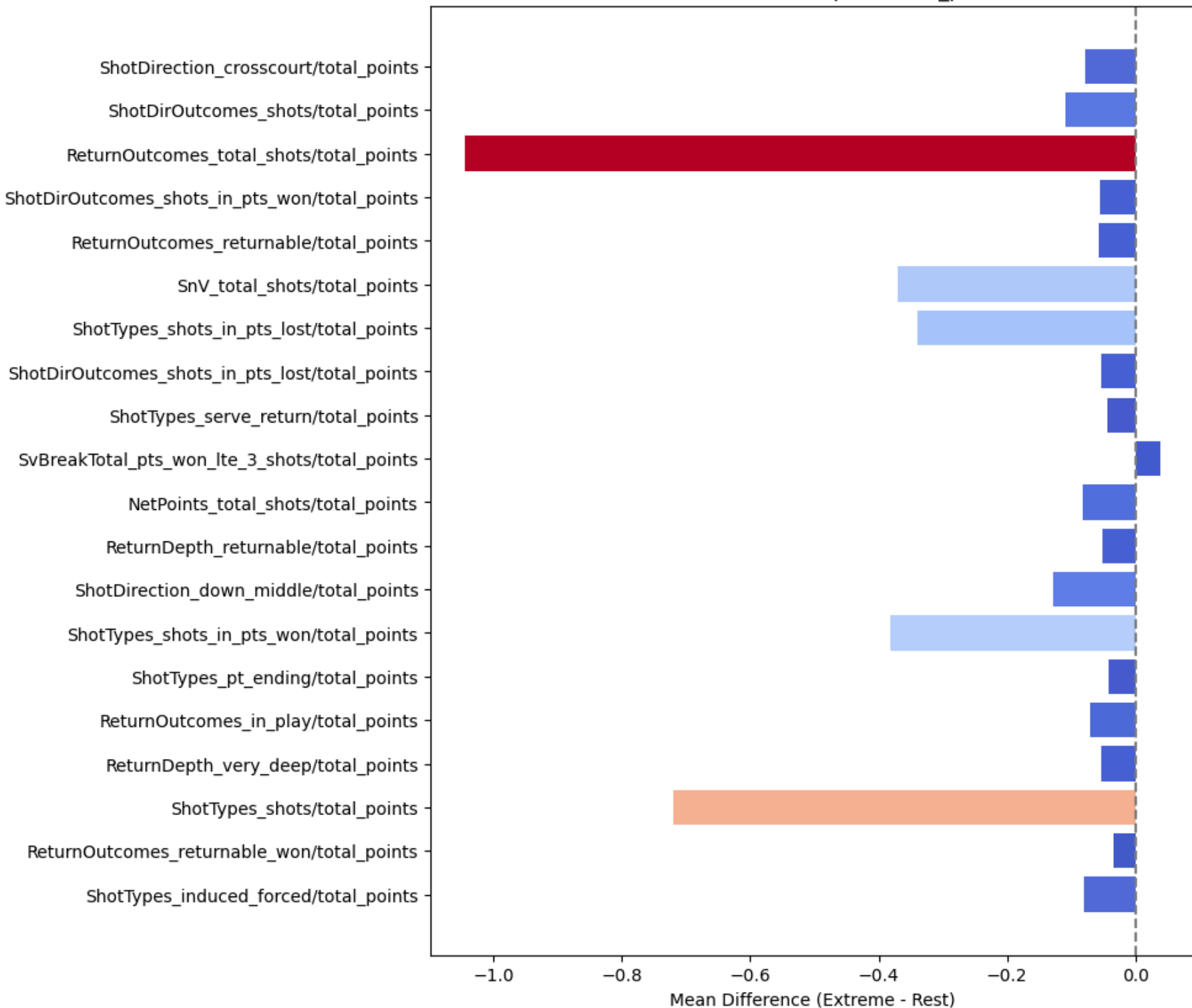
Extreme vs Rest Metrics: Full Zoom (/total\_points)



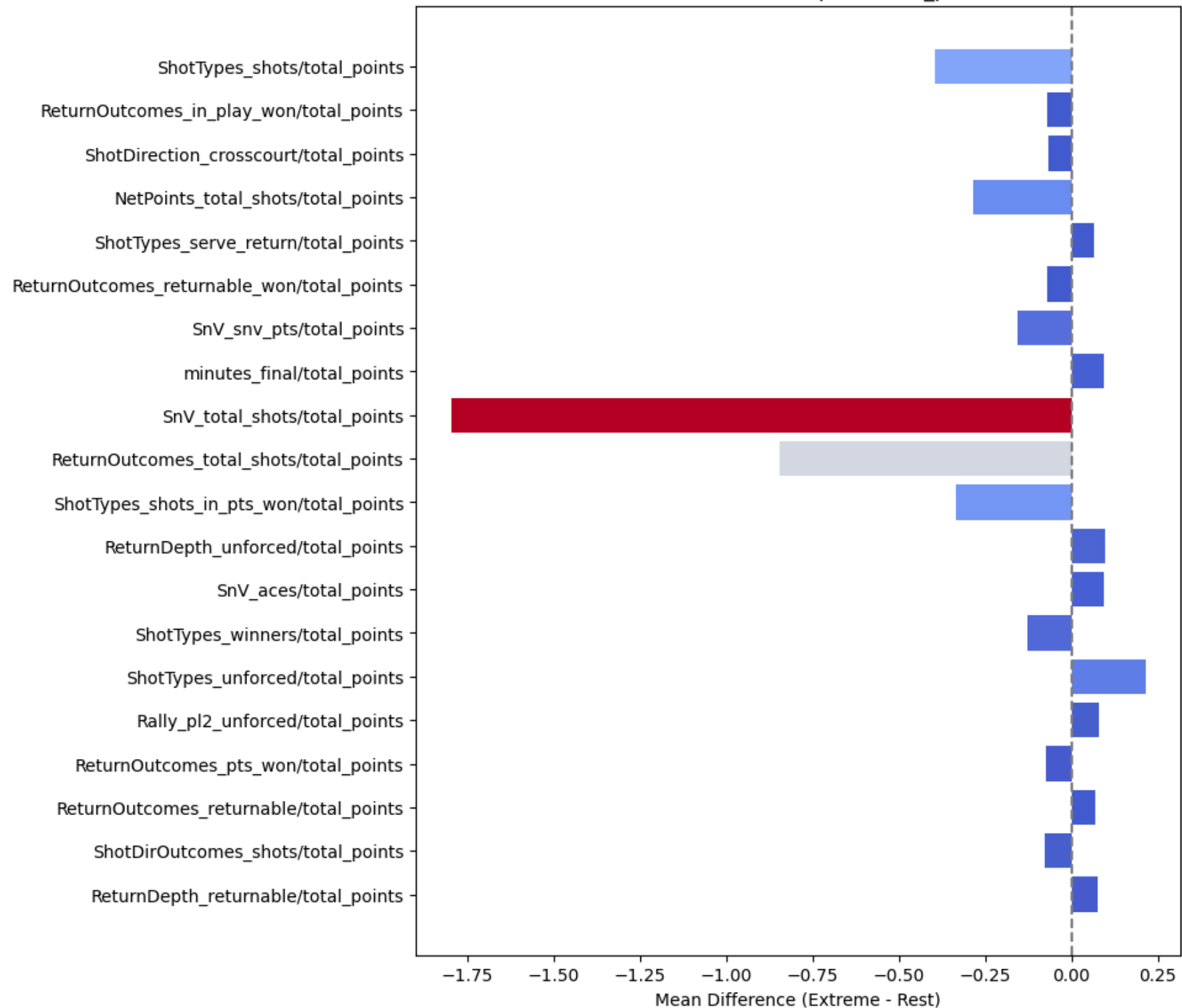
Extreme vs Rest Mean Diff  $\pm$  Std (Top 10)

Extreme vs Rest Mean Diff  $\pm$  Std (Top 10)

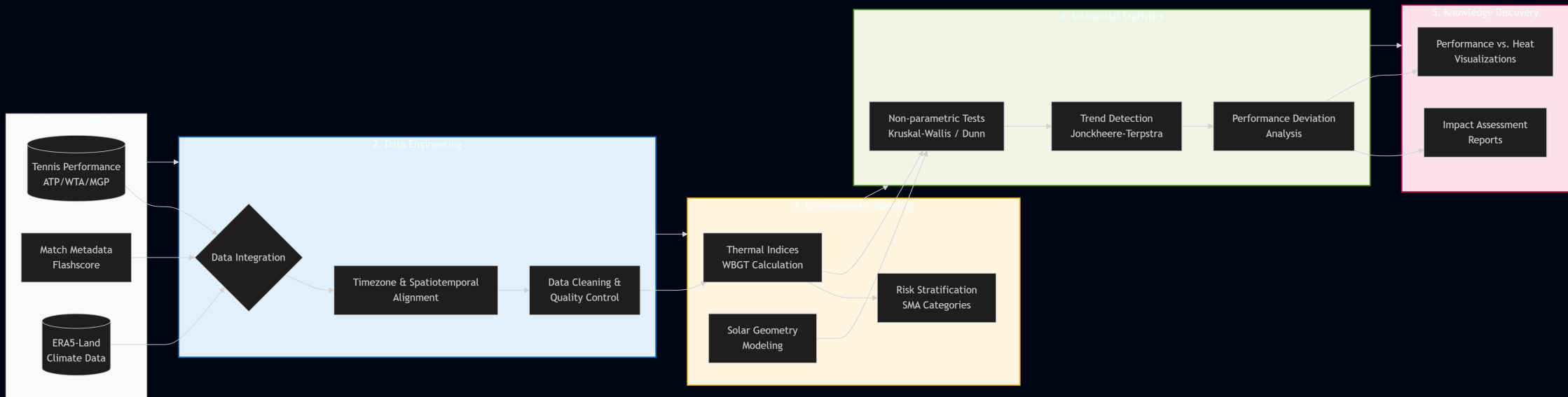
Extreme vs Rest Mean Diff (Top 20 /total\_points Metrics)



Extreme vs Rest Mean Diff (Top 20 /total\_points Metrics)







# **Player Performance Impact According to WGBT and SMA Metrics at the Australian Open Tennis Tournament**

**Gökcan Kahraman**



## **Abstract**

Global warming is becoming irreversible as time passes, and the negative effects it causes are also increasing. Outdoor sports competitions are at the forefront of these. Recently, rising temperatures have been affecting everything from match results to player health. These effects are particularly noticeable in tennis, one of the most watched outdoor sports competitions. This study provides a comprehensive analysis of the Australian Open singles tournaments in the ATP and WTA segments. This analysis combines detailed match statistics based on points with high-resolution data. Hourly temperature and humidity data were obtained using ERA5-Land data. These were combined with match metrics such as error rates, service efficiency, and point distribution per game. Metrics such as WBGT and SMA were used to assess heat stress. Statistical analyses, including Kruskal-Wallis tests, Jonckheere-Terpstra trend tests, and Spearman correlations, revealed a significant relationship between high WBGT/SMA risk categories and increases in error rates made without exertion, positive performance metrics such as service points and winners showed relative resilience to moderate heat stress. This research clearly demonstrates the impact of environmental stress factors on player performance and calls on tournament organisers and sports scientists to establish more sensitive conditions for fair competition and athlete health. The dataset and code scripts have been shared via a GitHub link and are openly accessible to facilitate further research.

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# Introduction

Tennis is a highly elite sport that tests both the physical and mental capabilities of its players. In such a demanding sport, if external factors are also intensely unfavourable, technique, physical strength and mental performance can be significantly negatively affected. While biomechanics, conditioning and tactical preparation are important considerations, if the environmental context in which matches are played is extreme, performance outcomes can become even more prominent. In outdoor tournaments, particularly the Australian Open, athletes are frequently exposed to excessive humidity and heat. These conditions can disrupt the body's temperature regulation, resulting in fatigue setting in more quickly than normal and negatively impacting physical and cognitive performance (Périard et al., 2014; Morante & Brotherhood, 2007)[1][6][7]. The effects of environmental stress factors are not merely theoretical. Observational evidence and physiological studies demonstrate that tennis performance measurably changes when players compete under high thermal conditions.

The concept of heat stress in sports is often operationalised using composite indices that go beyond dry-bulb air temperature to account for radiant heat, humidity, and air movement. Among these, Wet Bulb Globe Temperature (WBGT) is the most commonly used index for monitoring heat risk in competitive environments (Budd, 2008; Topend Sports, n.d.)(12)(10). WBGT is widely used for athlete monitoring, occupational safety, and, more recently, policy decisions at tennis tournaments. For example, the Australian Open Tennis Tournament implements the Australian Sports Medicine Association (SMA) extreme heat policy, which includes WBGT thresholds to determine interventions such as cooling breaks, suspending play, or closing roofs (SMA, 2021; Tartarini, 2023)(8)(9). However, while WBGT provides a holistic measure of environmental load, relatively little is known about its direct relationship with player performance during competition.

When examining physiological studies, exposure to high WBGT conditions results in increased body and skin temperature, increased heart rate, and increased perceived exertion. Each of these can reduce movement capacity and technical knowledge during a match, leading to a deterioration in the game played (Périard et al., 2014; Morante & Brotherhood, 2007)(6)(7). Behavioural adaptations, such as extending the rest period between points or reducing intensity during rallies, are among the measures recommended to reduce the effects of thermal stress. Hydration status adds an additional layer of complexity. As a result, elite players often experience greater than normal sweat loss, followed by electrolyte depletion. If hydration is inadequate in this situation, fatigue is exacerbated (Bergeron et al., 2007; Ely et al., 2008)(3). Personalised hydration strategies are expected to alleviate some aspects of physiological stress. However, unfortunately, declines in neuromuscular performance or decision-making accuracy under prolonged thermal load cannot be prevented (Périard et al., 2014)(7).

From a broader perspective, the negative impact of heat on performance is also supported by evidence outside of tennis. Research conducted in sports and occupational settings demonstrates that high temperatures reduce productivity, impair accuracy, and increase error rates. These effects are consistent with observations in competitive tennis (García-del-Barrio & Tena, 2021; Kjellstrom et al., 2016)(4)(5). These findings highlight the need to investigate how environmental stress interacts with

high-performance settings. In these environments, even the slightest decline can alter the outcome of elite-level matches.

Although heat stress is considered a potential threat among athletes during matches, large-scale, data-driven analyses linking meteorological conditions to actual tennis outcomes have yet to be sufficiently conducted. Although the majority of the existing literature provides valuable physiological information, experimental protocols or small observation samples lacking external validity exist across a wide range of competitive games. In this study, tennis performance datasets at the detailed match and point levels will be obtained from ERA5-Land reanalysis products and integrated with high-resolution meteorological data. This allows the required data type to be reasonably understood. Aiming to align performance indicators with concurrent environmental conditions, this study provides an excellent opportunity to demonstrate whether heat stress measures, particularly WBGT and SMA heat categories, are systematically related to performance patterns in elite tennis.

The general aim is to obtain empirical evidence regarding the effect of extreme weather conditions on tennis performance. This study was conducted specifically to quantitatively determine the extent to which match results and performance statistics change across different heat stress categories, to assess whether there are sequential trends between continuous WBGT values and performance indicators, and to evaluate whether individual players show consistent deviations from their baseline performance when competing under extreme conditions compared to normal conditions. By combining large-scale open-source performance data with state-of-the-art climate reanalysis, this study aims to advance the scientific understanding of environmental impacts on elite sports and the practical development of tournament heat risk policies.

## Data and Methodology

This study aims to combine high-resolution meteorological data with detailed tennis performance records to investigate the impact of external environmental factors on ATP and WTA match results. The study focuses on the Australian Open Tennis Tournament and utilizes data from previous years. This method combines reanalyzed weather data with comprehensive, publicly available tennis datasets. The study is based on a repeatable computational procedure that aims to ensure precision, consistency, and clarity.

Jeff Sackmann's open-access repositories are the data source for match-level and point-level performance data. These datasets include the WTA dataset [13], the ATP dataset [12], and the Match Graphing Project (MCP) [11]. These datasets include serve and return results, rally duration, shot types, and other metrics used in professional tennis for both men and women. Additional tournament schedules and match results from 2000 to 2024 were collected using specially designed web scrapers (such as Flashscore) to ensure temporal integrity and coverage. These two data sources were combined using their ids, and other available metrics, such as match time and tournament year, were also compiled.

The meteorological conditions for each match were obtained from the ERA5-Land reanalysis dataset provided by the Copernicus Climate Data Depot [14]. ERA5-Land provides hourly, high-resolution global atmospheric variables, including air temperature, relative humidity, solar radiation, wind speed, and surface pressure. For each match, these variables were extracted for the coordinates of Melbourne Park at the exact scheduled start time. From this raw data, composite indicators were calculated to capture the complexity of heat stress conditions. Specifically, Wet Bulb Globe Temperature (WBGT) was derived to provide a multidimensional measure of thermal stress, while the Australian Sports Medicine Association (SMA) classification framework was used to categorise matches into distinct heat stress risk levels. Additionally, calculations of the sun's position were included to model daily variations in playing conditions, thereby accounting for the effects of the time of day. To ensure comparability between matches, environmental data were normalised and aligned with match records.

The final analytical dataset enables analyses at both micro and macro levels by combining professional tennis performance indicators with concurrent environmental conditions. At the micro level, performance fluctuations per set under different thermal exposures are examined, while at the macro level, statistical evaluations allow for aggregate performance comparisons across various environmental categories. The dataset has been designed to be robust and reproducible: time zone differences between Istanbul-based data sources and Melbourne local time have been corrected, erroneous entries have been excluded or compensated for, and detailed logs have been kept throughout pre-processing.

The statistical framework for the analysis combined non-parametric hypothesis testing, trend detection, and correlation analysis to assess the extent to which environmental conditions affected player performance. Kruskal–Wallis tests were used to evaluate whether performance outcomes differed significantly across environmental risk categories. Jonckheere–Terpstra tests were applied to capture sequential trends related to increasing thermal stress. Dunn's post-hoc analyses were performed to control for multiple pairwise comparisons across environmental categories. Additionally, Spearman's rank correlation coefficients were calculated to assess relationships between continuous environmental measures, such as WBGT, and player performance outcomes. Beyond these group-level analyses, player-specific assessments were conducted to investigate how much individual athletes deviated from their baseline performance when exposed to extreme and normal environmental conditions.

The entire analytical workflow was implemented through a series of modular Python scripts developed specifically for this study. These scripts ensured reproducibility by automating data merging, pre-processing, environmental data acquisition, and statistical calculations. Intermediate results were cached to reduce data reacquisition, and comprehensive error handling routines were incorporated to manage erroneous or missing inputs. The workflow was designed for robustness and transparency; final outputs comprised automatically generated reports combining structured datasets, descriptive statistics, visualisations, and inferential test results.

In summary, this methodological framework combines large-scale open-source tennis data and state-of-the-art climate reanalysis products within a single statistical process. By correlating match performance with concurrent environmental conditions, this study provides a robust foundation for

investigating the interaction between physical performance and environmental stress factors in elite tennis competitions.

# Results

## 1. ATP Tour Analysis

### 1.1 Overall significance testing

First, we use the Kruskal-Wallis test to assess how significant the difference between the metrics is. Based on these assessments, there are a total of 153 different test groups, and 122 tests with a significance level below 0.05 were obtained. In this test, corresponding to a group of 79.7%, there are 82 tests with p-values less than 0.01 and 44 tests with p-values less than 0.001. Among the metrics placed for control purposes, it was observed that temperature-dependent metrics had the lowest p-values. This indicates that the classification correctly classified temperatures and did the same for metrics. Following the temperature metrics, the metrics with the lowest p-values were ShotTypes\_shots\_per\_game, ShotDirOutcomes\_shots\_per\_game, ShotDirOutcomes\_shots\_in\_pts\_won\_per\_game, ShotTypes\_shots\_in\_pts\_lost\_per\_game, ReturnOutcomes\_total\_shots\_per\_game, and SnV\_total\_shots\_per\_game. These metrics are ranked within the top 10 in terms of statistical significance. When evaluated overall, most of the variables showing significant differences describe playing style and shot preferences. These are also the game-style variables that best explain the performance differences between players.

### 1.2 Extreme vs Rest performance comparison

Service metrics reveal significant differences in the playing styles of extreme players. The average serve points (serve\_pts) value is 99.6 in the extreme group and 117.25 in the normal group, indicating a decrease of approximately 15%. This suggests that extreme players demonstrate lower efficiency in their serve points. Similarly, although the number of aces is ~1.86 lower in the extreme group (a 15% decrease), when the aces/total\_points ratio is normalised, the extreme group is actually found to have a 15% higher ace rate. This finding shows that extreme players produce more aces per point, thus adopting a more aggressive but riskier style in their serves. The first serve in ratio was found to be 58.6% in the extreme group and 78.3% in the normal group; this difference corresponds to a 13–14% decrease. When normalised, the first\_in/total\_points ratio appears to be 1.75% higher in the extreme group. This indicates that extreme players take more service risks relative to total points, yet their accuracy percentage remains relatively balanced. In contrast, the performance of extreme players is significantly lower in the second serve won metric (20% decrease). Similarly, the break points saved ratio is also 19% lower. This indicates that extreme players struggle particularly on second serves and critical points, where the risk does not pay off. There has also been a decrease in the number of unreturned serves (-0.78; 26% drop). This indicates that extreme players' serves are being returned more often, meaning that serve effectiveness is generally lower. Overall, extreme players play with a high risk – low stability



balance in their serves: they serve aggressively, produce more aces, but lag behind in serve accuracy and critical point performance.

Extreme players also perform poorly in return games. The average return points (return\_pts) difference is -31 points, meaning extreme players earn fewer return points than normal players. The number of return winners is also significantly lower (-4.66). The difference is more pronounced in terms of return depth. Extreme players score -102 points less in the ReturnDepth\_deep metric and -47 points less in the very\_deep metric. This indicates that extreme players make more superficial returns, thereby giving their opponent a positional advantage. Normalised metrics also support this result: extreme players prefer aggression over safety in their return games, but this approach is not efficient in terms of point conversion.

Extreme players' risk-oriented playing style is also evident in the shot metrics. The total number of winners in the extreme group was -8.67 (a 20% decrease), while backhand winners were -2.97 (a 31% decrease). Despite this, the normalised ratio of forehand winners/total\_points was 6.9% higher in the extreme group. This finding indicates that extreme players prefer to make aggressive shots, particularly on the forehand side. Although unforced errors appear approximately 1.8% lower on average in the extreme group, the standard deviations of these metrics are 63% higher, the error rate increases by 15% when normalised, and the variance increases by 87%. This situation indicates that extreme players exhibit inconsistent performance from match to match: they can play flawlessly in some matches, while making numerous errors in others. In the shot direction analysis, extreme players show a marked decline in crosscourt and down\_middle shots. Specifically, there is a 42% decrease in the down\_middle ratio and a similar decline in inside-out shots. These differences suggest that extreme players attempt more variation but with reduced efficiency.

The net games of extreme players appear weak. The average NetPoints\_net\_pts value is -25 points (a 24% decrease), with a decline in both net winners and induced forced errors metrics. Additionally, a -25 point decrease (26% drop) was observed in key points performance (for both serve and return). These findings indicate that extreme players fail to achieve success despite taking risks in critical moments.

In terms of final match duration, the extreme group played matches that were on average 43 minutes shorter (a 25% decrease). Furthermore, their variance was 22% higher. This indicates that extreme players won some matches very quickly, while in others they were eliminated early — meaning they experienced high volatility and fluctuating results.

### 1.3 SMA category comparisons

The highest average serve points (serve\_pts) were observed in the Low category (118.67). However, the standard deviation in this category is also quite high (36.8), indicating a significant performance gap between players. The Moderate and High categories show a more balanced performance on average (around 124 and 109). In contrast, the serve points are significantly lower in the Extreme category (99.6). This finding suggests that Extreme players may have weak serve performance or tend to conclude their games more quickly. Ace counts average around 10–12 across all categories; while the Extreme and

Moderate groups have slightly higher ace averages, high standard deviations indicate strong individual variation. The difference is more pronounced in terms of double faults: the Low category has the highest average (3.5), indicating relatively low serving reliability. The High and Extreme categories have fewer double faults, suggesting that these players adopt safer or risk-averse serving strategies.

When examining normalised metrics, the winner ratio in the Extreme category has decreased, while the unforced error ratio has also fallen slightly. This indicates that both error and winner opportunities have decreased for Extreme players due to the short duration of rallies. Break point (bk\_pts) and break point saved (bp\_saved) averages are highest in the Low category (9.4 and 5.8, respectively). This group encounters difficult positions more frequently but also appears more successful in defence. These values are low in the Extreme and High categories, suggesting that these players engage in fewer long rallies or shorten critical moments due to risky play. Furthermore, points won at the net have decreased significantly in the Extreme category. Both the frequency of net approaches and the net point conversion rate are lower than in other categories. This indicates that Extreme players prefer net play less often. Overall, service metrics show that 20–25% fewer service points are scored under Extreme conditions. Furthermore, the number of aces has decreased in the Extreme category, but the double fault rate has also fallen. This may indicate that players are attempting more cautious serves rather than taking risks.

Return points (return\_pts) are relatively high in the Extreme and Low categories (100–119 range), indicating that these groups tend to play aggressively on returns. However, the difference in return point winning rate (return\_pts\_won) is noteworthy: it stands at 42% in the Low category, 37–38% in the Moderate and High categories, and 34% in the Extreme category. Additionally, return depth metrics are significantly lower in the Extreme category. This indicates that returns are ending sooner, rallies are becoming shorter, and return failure is increasing. Return scores decrease by 25–30 per cent under Extreme conditions. The number of Winners is 40 and 34 in the Moderate and High categories respectively, and around 31 in the Extreme category. This difference indicates that Extreme players have a reduced capacity to generate points.

In terms of unforced errors, the Extreme and Low categories have higher error counts (between 15 and 19). The error rate is approximately 0.16%. In contrast, the Moderate category has the lowest error count (~14), indicating a more controlled style of play. The first serve success rate (first\_in) is approximately 75% in the Low category, 78–68% in the Moderate and High categories, and 63% in the Extreme category. This decline indicates that Extreme players increase their serve risk but experience a loss in success rate. The first serve point conversion rate (first\_won) ranges from 54–58% in the Moderate and Low categories, but drops to 47.5% in the Extreme category. This reveals that Extreme players have low efficiency in converting points on their first serve.

Second serve performance (second\_in & second\_won) is low across all categories (ranging from 35–45%), but drops to 17.9% in the Extreme category. Service performance also weakens at critical moments. Key point service success was found to be approximately 30% lower under extreme conditions; a similar decline was observed on the return side. Match durations (minutes\_atp, minutes\_final) averaged 160–170 minutes in the Low and Moderate categories and approximately 159

minutes in the Extreme category. However, the Extreme group has a high standard deviation, indicating that some matches were very short while others lasted the normal duration.

## 1.4 Correlation with environmental stressors

The analysis results reveal the effects of environmental conditions, particularly temperature, on tennis performance. The strongest correlations with temperature were observed in serve statistics. A significant increase in the number of aces was observed as temperature increased. The variables aces, ServeBasics\_aces, SvBreakSplit\_first\_aces, and SnV\_aces were found to be positively correlated with temperature ( $r \approx 0.09\text{--}0.10$ ,  $p < 0.01$ ). This suggests that players use more aggressive serves in hot conditions or that the ball physically moves faster. The increase in aces, particularly on first serves, indicates that heat may directly positively affect serving performance.

In return and rally statistics, generally weak and insignificant correlations have been observed. However, significant negative relationships have been identified in some metrics representing shot direction (ShotDirection category). Specifically, the usage rate of 'down the middle', 'inside-out' and 'inside-in' shot types decreases as the temperature increases ( $r \approx -0.07$  to  $-0.08$ ,  $p < 0.05$ ). This finding indicates that in hot conditions, players tend towards less directional, less risky, and shorter rallies. The avoidance of technically complex shots under heat stress suggests that players adopt more direct game strategies to conserve energy.

No significant correlation was observed in the metrics related to net play. Serve and Volley statistics mostly showed meaningless correlations, with only a slight positive correlation found in the SnV\_aces variable ( $r \approx 0.09$ ,  $p \approx 0.04$ ). Indicators such as net winner or passed at net are not significantly related to temperature. This result indicates that high temperature conditions do not directly affect net performance or the decision to approach the net.

Overall, an increase in temperature positively affects serve performance but negatively impacts shot variety and directed rallies. Under high heat conditions, the game structure centres around shorter rallies, more direct point-seeking, and serve-focused strategies. This indicates that players adopt an aggressive yet simplified playing style in hot environments.

## 1.5 Set-status dependence

In terms of service performance, a decrease in total service points was observed for both leading and losing players in extreme sets; this difference is particularly noticeable in tied sets. While the number of aces served by leading extreme players increased significantly, this difference disappeared in tied situations. The number of double faults is low in leading extreme sets and quite high in losing extreme sets. The first serve percentage shows a slight decrease in leading extreme sets, while there is a significant drop in losing sets. Leading extreme players are more consistent in points won on first serve, while losing players experience a noticeable decline in performance. These findings indicate that players in leading extreme sets demonstrate more controlled, error-free, and balanced serving games, whereas in losing extreme sets, there is an increased tendency to take risks, which leads to errors.

Break point statistics reveal a clear difference between the leading and losing groups. In leading extreme sets, the number of break points conceded to the opponent is quite low, indicating a high ability to hold serve. Furthermore, players in this group are also successful in their break point save (bp\_saved) rates. In contrast, the number of break points increases and save rates decrease in losing extreme sets. This indicates that leading extreme players are more resilient in critical moments, while losing extreme players make more errors under pressure.

In terms of return and rally statistics, both leading and losing players have seen a decline in their return points in extreme sets. However, this decline is more pronounced in losing extreme sets; the return point conversion rate for players in this group has decreased significantly. Although winner production has declined in both leading and losing extreme sets, the decrease is much stronger among losers. The unforced error rate remains low in leading extreme sets, while there is an upward trend in losing sets. Although the error rate has generally decreased in tied sets, the differences are more limited. These findings indicate that leading players can maintain rally control under extreme conditions, while losers experience a decline in performance due to increased errors and a decrease in winners.

Forehand and backhand performance most clearly reflects the differences between players in extreme sets. Both leaders and losers in extreme sets showed a decrease in the number of forehand winners, with this difference being particularly pronounced among the losers. The number of backhand winners decreased significantly across all groups; the decline was even greater among leaders in tied situations. The forehand unforced error rate showed a downward trend among leaders, while fluctuating among tied and losing groups. The most notable difference was in backhand errors: backhand errors decreased significantly among leaders in extreme sets, while increasing among losers. This indicates that backhand performance is the most critical factor determining player superiority in extreme sets.

Generally speaking, when evaluated, leading players demonstrate more efficient, controlled, and low-error performance in extreme sets; losing players, on the other hand, take risks and exhibit a more unbalanced game. Leading players in extreme sets have a high ace rate, low double fault rate, and balanced critical point management. In losing extreme sets, however, service reliability decreases, return success declines, and errors increase. Tied situations present a transitional profile between these two extremes; in some metrics (e.g., backhand winners or unforced forehand errors), the differences can be even greater than those of the leader.

These findings demonstrate that performance differences under extreme conditions are shaped not only by physical factors but also by strategic and psychological factors. Leading players' ability to maintain control under pressure enables them to perform consistently even under extreme conditions, while losing players' tendency to take excessive risks disrupts the game balance and increases error rates.

## 2. WTA Tour Analysis

### 2.1 Overall significance testing

Environmental variables such as temperature, humidity, and WBGT (Wet Bulb Globe Temperature) showed highly significant differences in performance according to both WBGT and SMA categories. In terms of temperature,  $H=48.5$  ( $p \approx 3.3e-12$ ) was found in the WBGT categories and  $H=45.8$  ( $p \approx 6.3e-10$ ) in the SMA categories. Humidity was significant for WBGT with  $H=28.1$  ( $p \approx 1.2e-07$ ) and for SMA with  $H=81.2$  ( $p \approx 1.7e-17$ ). The WBGT index and SMA interpolation also showed high significance for both categories (WBGT index: WBGT  $H=44.0$ ,  $p \approx 3.3e-11$ ; SMA  $H=35.9$ ,  $p \approx 7.8e-08$ , SMA interpolation: WBGT  $H=83.4$ ,  $p \approx 6.8e-20$ ; SMA  $H=121.9$ ,  $p \approx 3.1e-26$ ). These findings reveal that environmental conditions strongly affect player performance.

Only the SMA categories showed a significant difference in terms of total points ( $H=11.2$ ,  $p=0.0105$ ). Winners metrics were significant in the SMA categories, particularly for backhand strokes ( $H=9.5$ ,  $p=0.023$ ), while for forehand strokes, significance was borderline in the WBGT categories ( $p=0.05$ ). Unforced error rates were significant in both WBGT ( $H=7.11$ ,  $p=0.0077$ ) and SMA categories ( $H=8.7$ ,  $p=0.0333$ ). The 'best of per game' metric, representing the match format or number of sets, also showed significant differences for both categories (WBGT  $p=0.0093$ ; SMA  $p=0.0070$ ).

SMA has a significant impact on service performance, particularly on second serves and critical points. Return performance, return depth in rallies, and error rates vary significantly with both SMA and WBGT categories. The effect of SMA on shot direction and shot impact is evident; players' shot direction and results on critical points differ according to environmental and SMA categories.

## 2.2 Extreme vs Rest performance comparison

Extreme group players showed significant declines in total points and service performance. Service points (serve\_pts) were found to be 16.3 points (22%) lower on average in the extreme group, indicating a significant loss of performance. The first serve success rate (first\_in) and the number of first serves won (first\_won) decreased by 26-28%, indicating a loss of quality on the first serve in the extreme group. Backhand winners (winners\_bh) decreased by 43.6%, creating a significant performance gap. Furthermore, in terms of match duration, the extreme group played on average 39% shorter matches in the finals, indicating that matches were generally completed early or players were eliminated quickly.

In terms of standard deviations, the extreme group showed higher variation in critical point metrics (serve\_pts, return\_pts) (around 27%), meaning their performance was more variable. However, the standard deviation in final match duration decreased by 83%, indicating that the extreme group mostly played similar short matches. In break points saved (bp\_saved) metrics, the extreme group showed a lower standard deviation (-21%), meaning consistent but low performance.

When examining the ratios within the total points, no significant differences are observed. For example, the serve\_pts/total\_points and return\_pts/total\_points ratios have remained almost the same. However, an 8-10% increase has been observed in the second\_in/total\_points and second\_won/total\_points ratios, suggesting that the extreme group may have employed a more aggressive or different strategy on second serves. The error rate (unforced\_rate/total\_points) has increased by 45%, which is a significant indicator of poor performance.

The extreme group showed higher values in the ratio of points won directly from the serve (serveAce/total\_points). Double faults (ServeDF/total\_points) decreased and contribution to service points (ServePts/total\_points) increased. These findings indicate that the extreme group employed high-risk, high-reward serves and adopted an aggressive, efficient serving strategy. The rest group, on the other hand, preferred safer but less point-winning serves.

The extreme group attempted to gain points through risky return plays. An increase in the ReturnDepth\_err\_wide/total\_points ratio ( $\uparrow\%$ ) indicates a rise in erroneous wide returns, while a decrease in the ReturnDepth\_legal/total\_points ratio ( $\downarrow\%$ ) reveals that legal long returns were used less frequently. Successful return points (ReturnPts/total\_points) contributed more to the total score in the extreme group. While the rest group made more stable and controlled return shots, their total contribution remained more limited.

The extreme group took risks and played effectively in backhand shots (Backhand/total\_points), but performed less well in forehand and slice shots. This shows that the extreme group leaned towards an aggressive, power-focused backhand strategy, relegating safe slice and forehand shots to the background. The rest group preferred classic, controlled, and safe shots.

The extreme group adopted an aggressive game at the net (NetPoints/total\_points), increasing their point gain. The NetPoints\_passed\_at\_net/total\_points ratio decreased, meaning they reduced risk at the net and displayed a more dominant net game. In critical points (KeyPoints/total\_points), the extreme group gained a clear advantage, while the rest group remained safer but limited in impact during critical moments.

## 2.3 SMA category comparisons

In terms of Serve Points (serve\_pts), the average value was highest in the moderate category ( $\sim 82.7$ ), but the standard deviation remains high ( $\sim 27.4$ ), indicating that despite high performance under moderate conditions, variability persists. Performance in the extreme category is both low ( $\sim 57.5$ ) and highly variable (std  $\sim 29.3$ ). The number of aces is higher in the moderate category ( $\sim 5.08$ ), while it is around 3 in the extreme and low categories. Double faults (dfs) average 6.71 in the extreme category and 7.55 in the low category; although the number of errors is lower in extreme conditions, the standard deviation is high, meaning players' performance is inconsistent.

The first serve in (first\_in) and first serve won (first\_won) metrics show a similar trend. The highest performance is observed in the moderate category with first\_in at 49.4% and first\_won at 33%, while the lowest performance is recorded in the extreme category with 32.8% and 20.9% respectively. Second serve success and second serve won rates are also better in moderate and high conditions, while they decline in the extreme category.

Players are more successful in the moderate and high categories in terms of Return Points (return\_pts) and Return Points Won (return\_pts\_won). In the extreme category, return\_pts averages 26.42 and return\_pts\_won averages 15.57, while in the low category, return\_pts averages 28.99 and

return\_pts\_won averages 20.75. These findings show that players' return performance is more stable and effective in lower or more comfortable conditions.

Rally points and winners metrics are higher under extreme and high conditions. In the extreme category, rally points are ~30, winners ~12; in the high category, rally points are ~34, winners ~12.6. In the low category, rally points are ~26, winners ~9.45. This indicates that rallies are longer but less stable in difficult conditions, while in low conditions rallies are shorter and the number of winners is lower. Unforced errors increase in extreme and high conditions (~12.4-12.6) and are lower in low conditions (~9.45).

Net play performance decreases in extreme conditions. In the extreme category, net points average ~30 and winners ~14.3, while in the low category, net points are ~39.83 and winners ~26.6. This indicates that net play risk increases and success rate decreases in extreme conditions.

In the extreme category, the average temperature is 36.25°C, solar elevation is high, and wind is slightly stronger. These harsh environmental conditions contribute to low and unstable performance in the extreme category. In moderate conditions, the average temperature is 29.87°C, and performance is highest and relatively more stable. Performance in the high and low categories is not as high as in the moderate category but is better than in the extreme category. Average match durations (minutes\_wta, minutes\_final) are longest in the moderate category (~112-165 minutes) and shorter in the extreme and high categories. This indicates that matches are shorter under challenging conditions and longer and more competitive under moderate conditions.

## 2.4 Correlation with environmental stressors

Spearman correlation analyses between performance metrics and SMA interpolation reveal small but significant positive relationships between serve and return performance and overall game performance. Serve Points (serve\_pts) showed  $r = 0.10$ ,  $p = 0.011$ ; first\_in showed  $r = 0.082$ ,  $p = 0.04$ ; and second\_won showed  $r = 0.111$ ,  $p = 0.005$ . These findings indicate that first and second serve success have a positive effect on performance.

The metrics for winning points in short rallies (ServeBasics\_pts\_won\_lte\_3\_shots) showed the strongest positive correlation ( $r = 0.140$ ,  $p < 0.001$ ), meaning that short and effective rallies contribute significantly to players' overall performance.

Serve & Volley (SnV) metrics show a moderate positive correlation with overall performance. SnV points (SnV\_snv\_pts,  $r = 0.319$ ,  $p = 0.008$ ), ace count (SnV\_aces,  $r = 0.347$ ,  $p = 0.004$ ), and points won in SnV (SnV\_pts\_won,  $r = 0.286$ ,  $p = 0.019$ ) were found to be significantly related to performance. These findings reveal that players who effectively utilise ace and SnV strategies gain an advantage in overall game performance.

Other minor metrics such as ServeBasics\_wide ( $r = 0.131$ ,  $p = 0.001$ ) and SvBreakSplit\_first\_forced ( $r = 0.125$ ,  $p = 0.0017$ ) also show a positive correlation with performance. Players who serve wide and score

points from forced errors contribute to overall performance, even if this does not create a significant advantage on its own.

When examining the effect of environmental conditions, wind was generally found to have a negative effect, while temperature and humidity had small positive effects. Many technical statistics (aces, winners, unforced errors) show small but, in some cases, significant correlations. Overall, Spearman's  $r$  values mostly range between 0.05 and 0.15, and while they do not show a significant impact on their own, when combined, they contribute to meaningful performance differences.

## 2.5 Set-status dependence

Performance analysis of the leading players indicates that they have adopted a controlled game strategy. Slight decreases have been observed in service metrics (serve\_pts and serve\_pts/total\_points) (mean\_diff = -1.98, -6.9%), but return points have remained almost the same or increased slightly (0.098, 0.32%). This suggests that the leading players may be slightly behind in their service performance, but they are maintaining balance in their returns. The number of aces shows a slight positive difference among the leading players (0.398, 22.8%), meaning they sometimes try to win points with aggressive serves. Double faults (DFs) have increased slightly (0.124, 9.5%), indicating that risks are being taken. The number of winners has decreased with a negative difference (-2.44, -24%), meaning that players in the lead are playing more controlled and avoiding direct finishing shots. Unforced errors show a positive difference (2.13, 20.7%), meaning the error rate has increased slightly. In summary, players who are ahead play more controlled and strategically, limiting risky shots, and the likelihood of making errors increases slightly.

Players trailing behind are displaying a riskier and more error-prone game compared to those in the lead. Although the change in service points is very small (almost the same), a negative difference is observed in return points (-1.98, -6.9%), indicating that players trailing behind are struggling to keep up. The number of aces has decreased significantly among players at the back (-0.376, -34%), while double faults have increased (0.414, 28%), meaning they make more mistakes under pressure. The number of winners has decreased significantly (-3.27, -39.6%), and unforced errors show a positive difference (3.55, 29.6%). These findings reveal that players who are behind are less aggressive, more prone to errors, and forced to attempt risky shots; this situation contributes to widening the gap.

In the case of a tie, performance differences are generally smaller. Serve\_pts and return\_pts show differences of -2.3 and -7.5% respectively, while winners show a limited change of -1.89 (-20.8%) and unforced errors +0.6 (5.1%). This indicates that in a tied situation, the balance of the game is maintained, with players neither playing too aggressively nor making too many errors.

## Conclusion and Discussion

This study has revealed the effects of extreme environmental conditions, SMA categories, and set situations on player performance using ATP and WTA match data. Extreme environmental conditions



reduce serve and return success rates, increase error rates, and shorten match durations. Moderate conditions, on the other hand, provide high performance and relatively more stable play.

In terms of performance metrics, winning points in short rallies, Serve & Volley strategies, and backhand shots stand out as the factors most influencing overall performance in both men's and women's tennis. Match situation analyses show that players who are ahead play a more controlled game, while those who are behind play a riskier game that is more prone to errors. When the score is tied, the game remains balanced, with aggressiveness and error rates remaining at limited levels.

These findings reveal that factors such as environmental conditions, SMA strategies, and match situation significantly shape player performance and should be taken into account in the decisions of tournament organisers, coaches, and sports scientists. Particularly in tournaments with high temperatures, such as the Australian Open, considering environmental conditions is of vital importance for player health and performance optimisation.

This study comprehensively examined the effects of extreme environmental conditions, SMA categories, and match situations on player performance using ATP and WTA match data. The findings show that extreme environmental factors such as high temperatures, intense sunlight and windy conditions negatively affect the performance of both male and female players. This situation reduces serve and return success rates, increases the rate of unforced errors and shortens match duration. On the other hand, moderate conditions support high performance and relatively more stable play.

At prestigious tournaments such as the Australian Open, it is critically important to consider environmental factors in order to protect player health and maintain a high level of competition. Therefore, tournament officials need to reorganise the tournament schedule in accordance with environmental conditions in order to provide both an energy-efficient and player-friendly tournament experience. While this study highlights the necessity of such recommendations, Future Work suggests analysing how tournament week temperatures could vary under different climate scenarios and presenting recommendations accordingly; this topic could be addressed in a separate article.

This study also has certain limitations. As detailed statistics for all matches are not available and data prior to 2000 was not used, a long-term analysis could not be conducted. Recent studies can examine tournament and player performance trends over a longer period using this missing data. Furthermore, by integrating athletes' physiological data (e.g., heart rate,  $VO_2$  max, heat tolerance), the relationship between performance and environmental and strategic factors can be analysed in greater depth. This approach will make significant contributions to player health and performance optimisation.



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# Appendix

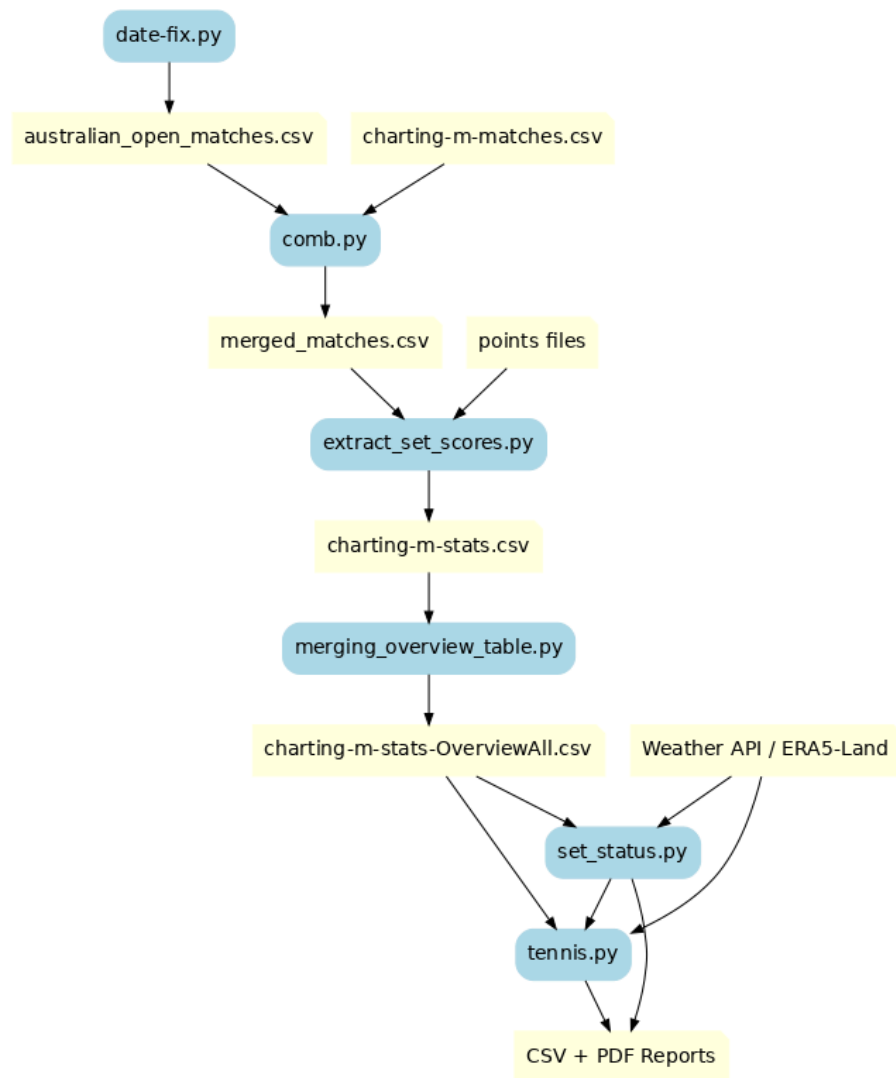


**Image 1:** The pipeline of project

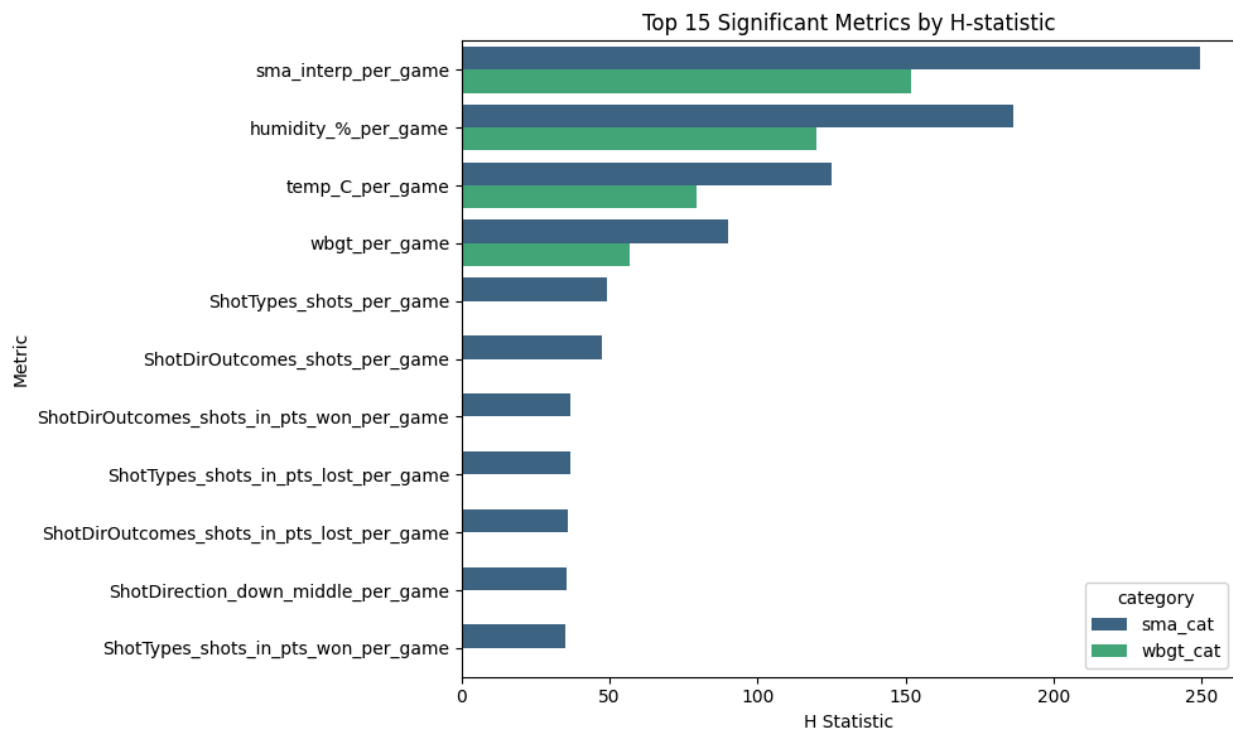


**Image 2:** Top Significant Metrics by H-Statistics

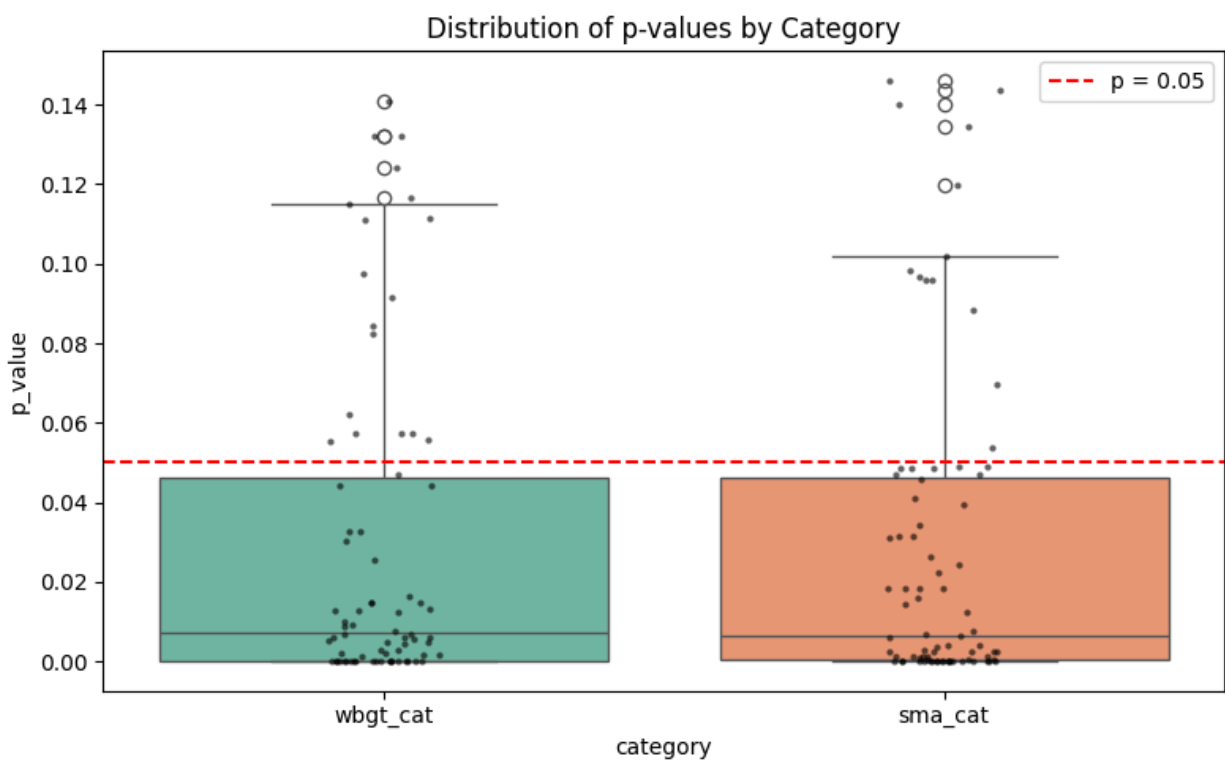


**Image 3:** Distribution of p-values by Category



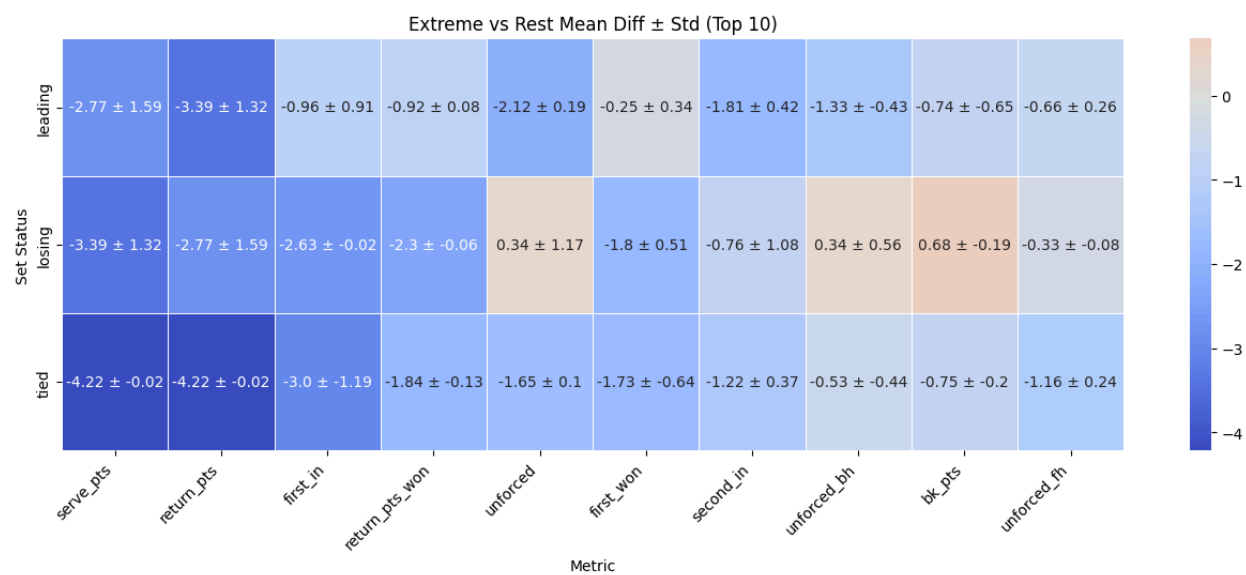


**Image 5:** *Extreme vs Rest Metrics Set Status*



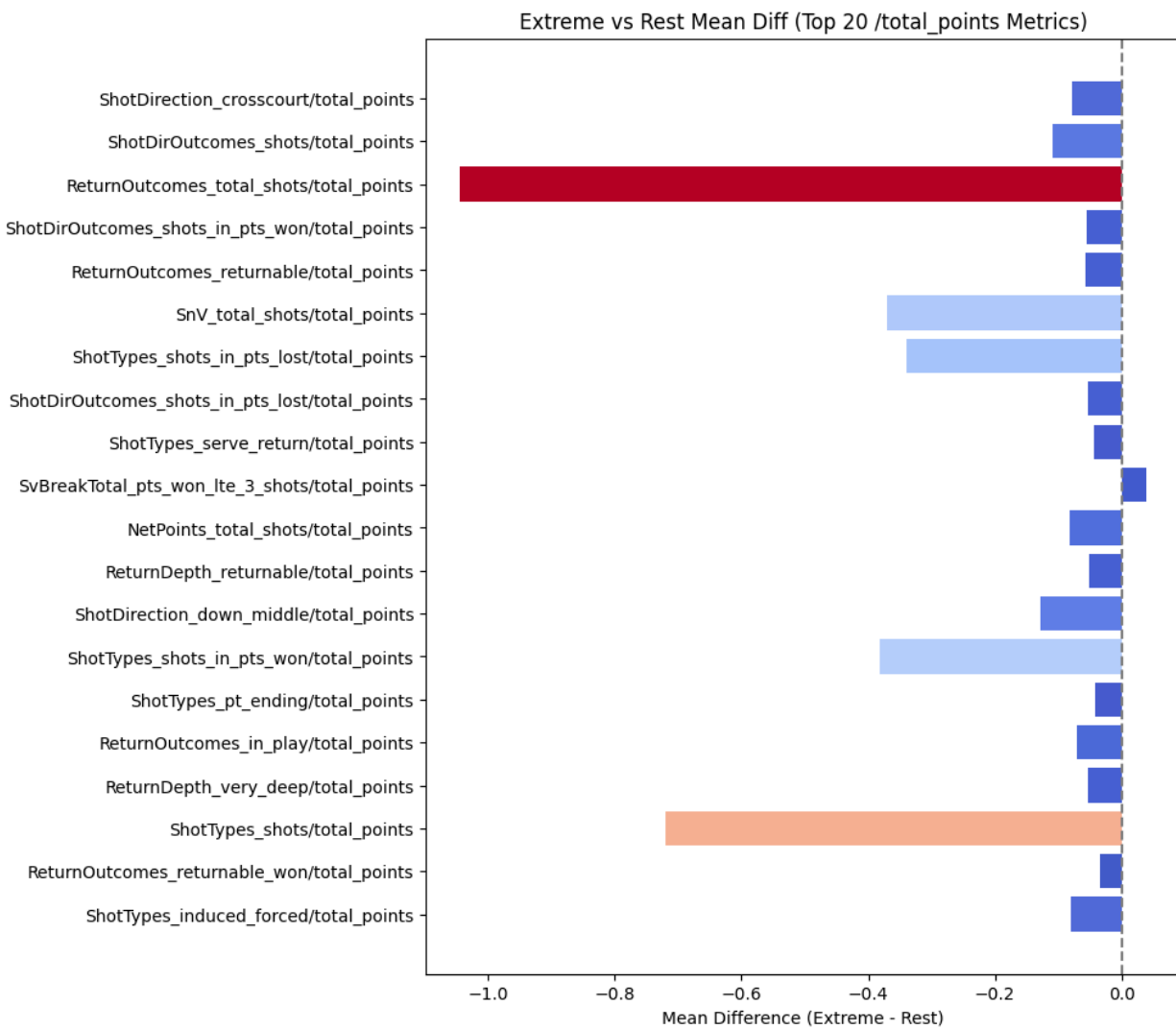


**Image 6:** Extreme vs Rest Metrics Mean Diff for Total Points

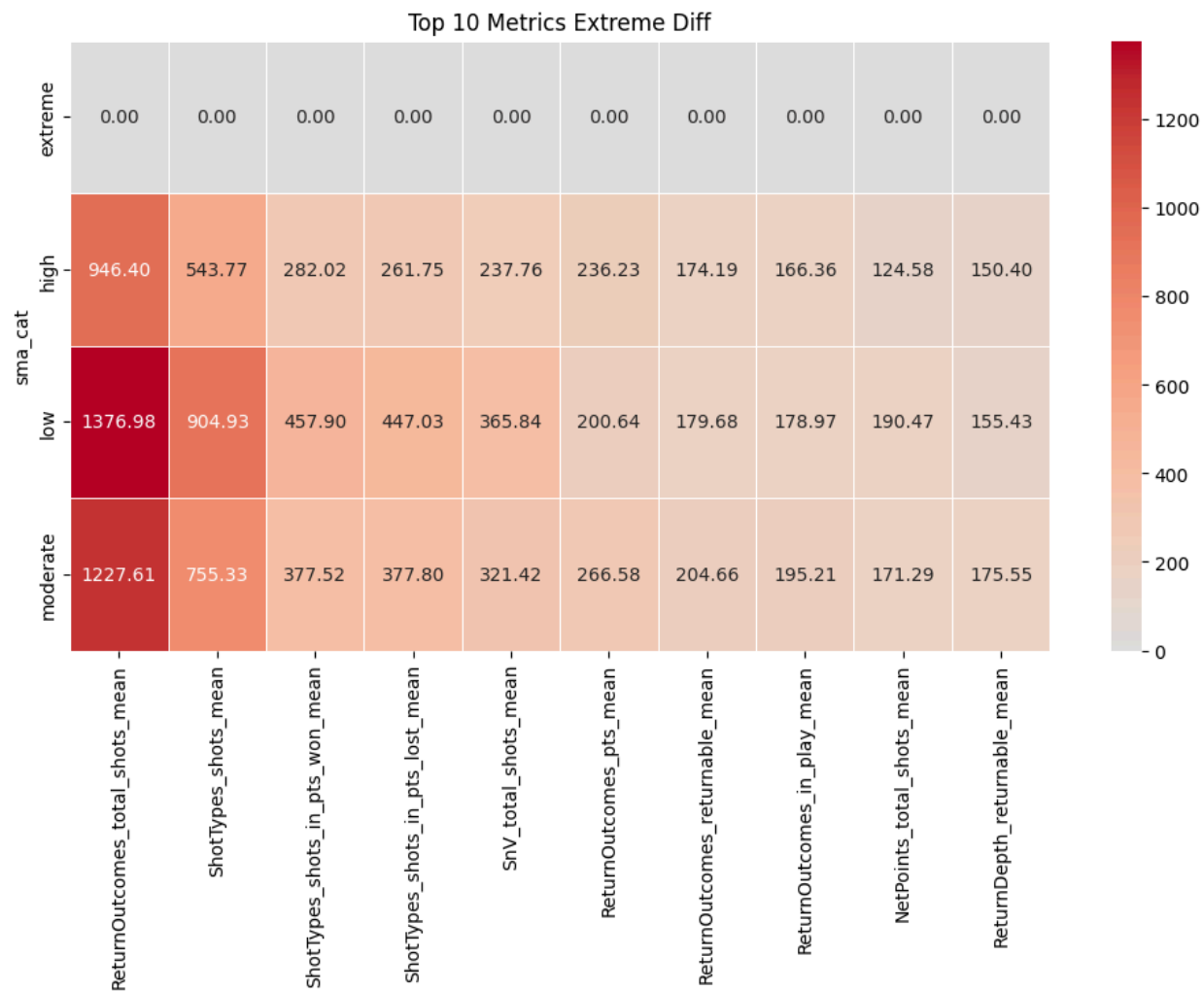


**Image 7:** SMA Categories Top 10 Metrics for Extreme Diff Mean

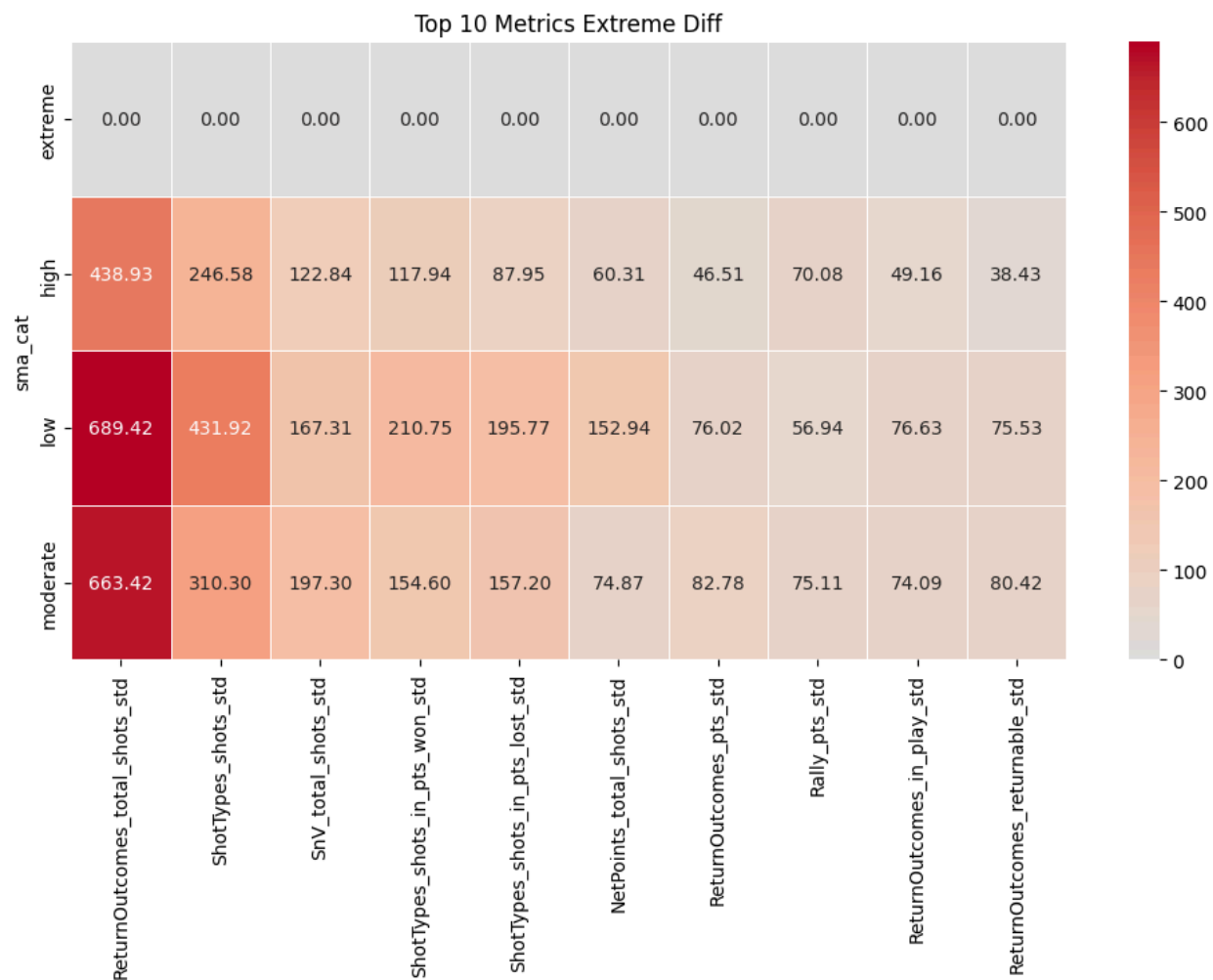


**Image 8:** SMA Categories Top 10 Metrics for Extreme Diff Std

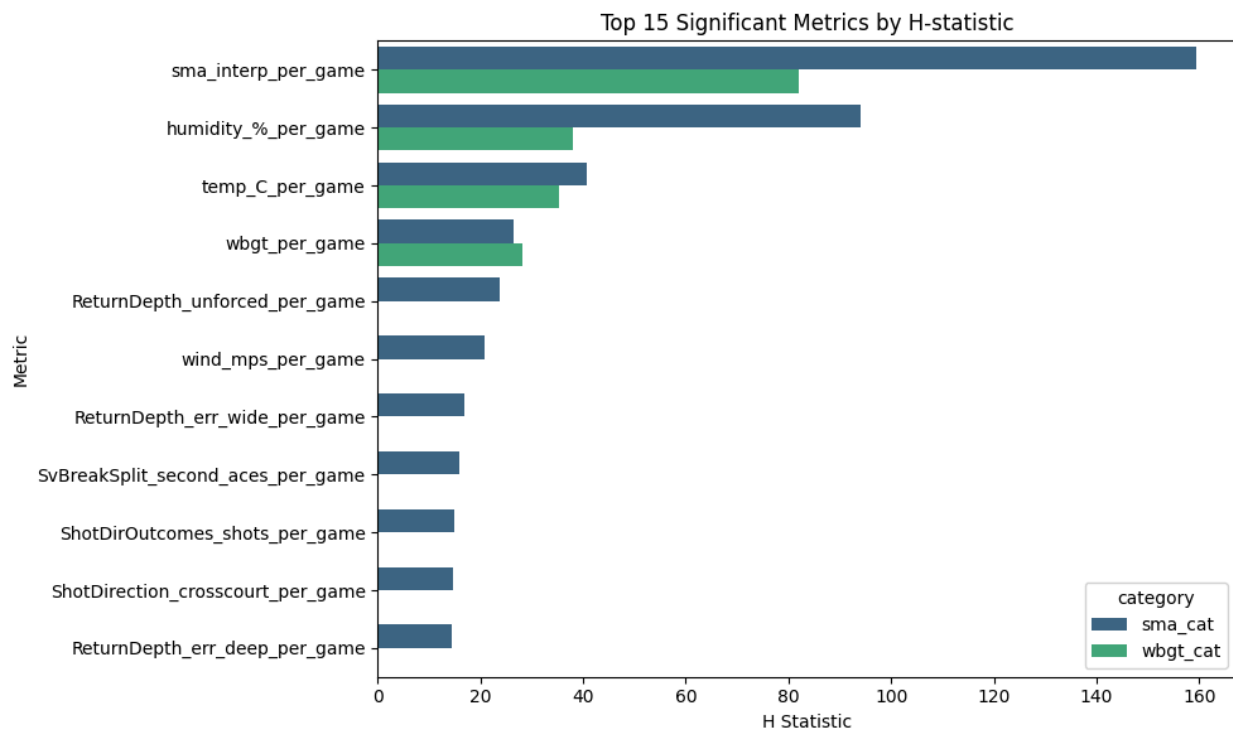


**Image 9:** WTA - Top Significant Metrics by H-Statistics

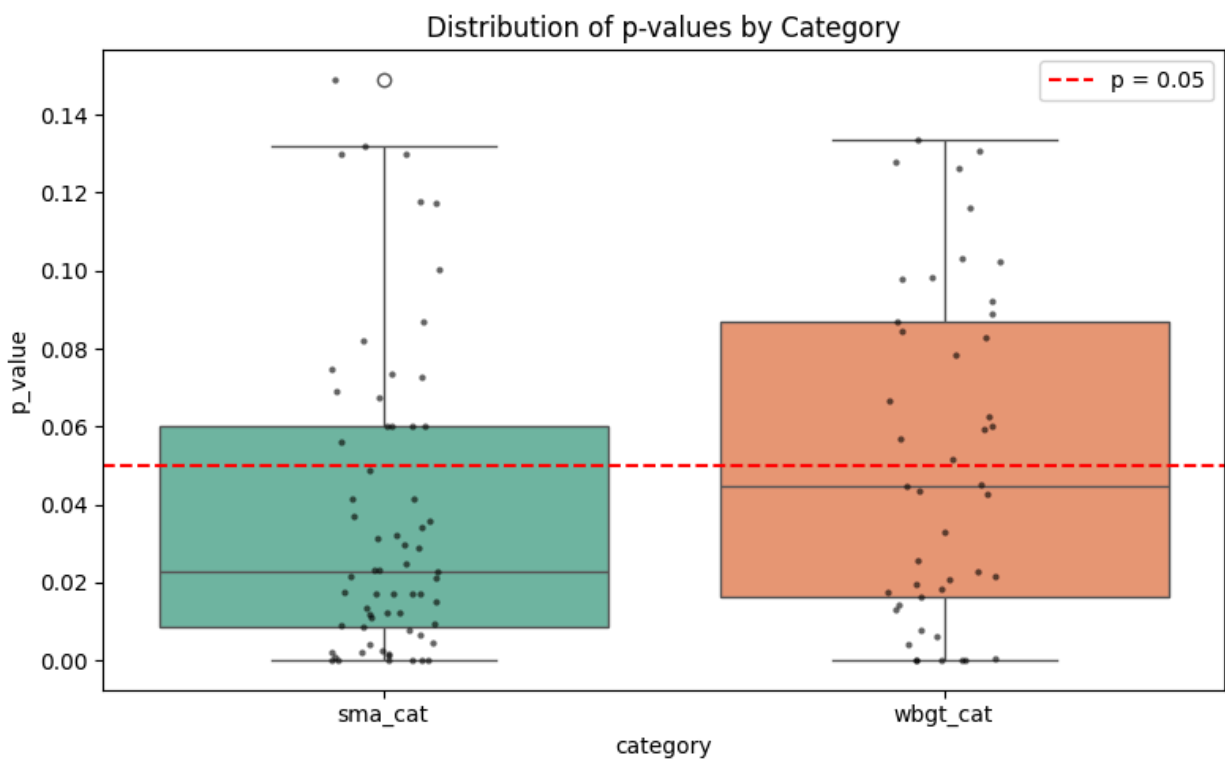


**Image 10:** WTA - Distribution of p-values by Category

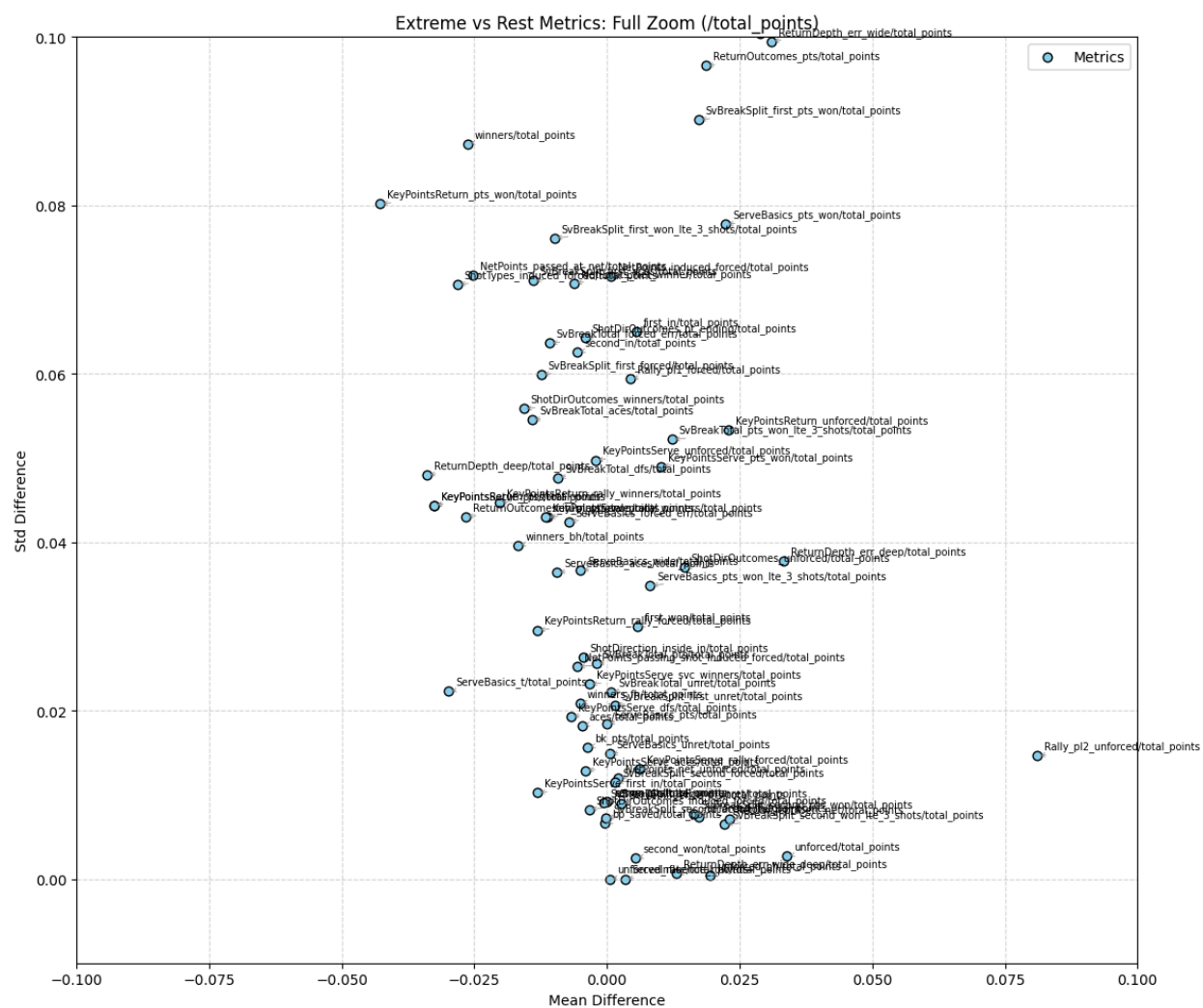


**Image 11: WTA - Extreme vs Rest Metrics mean - std Graph**

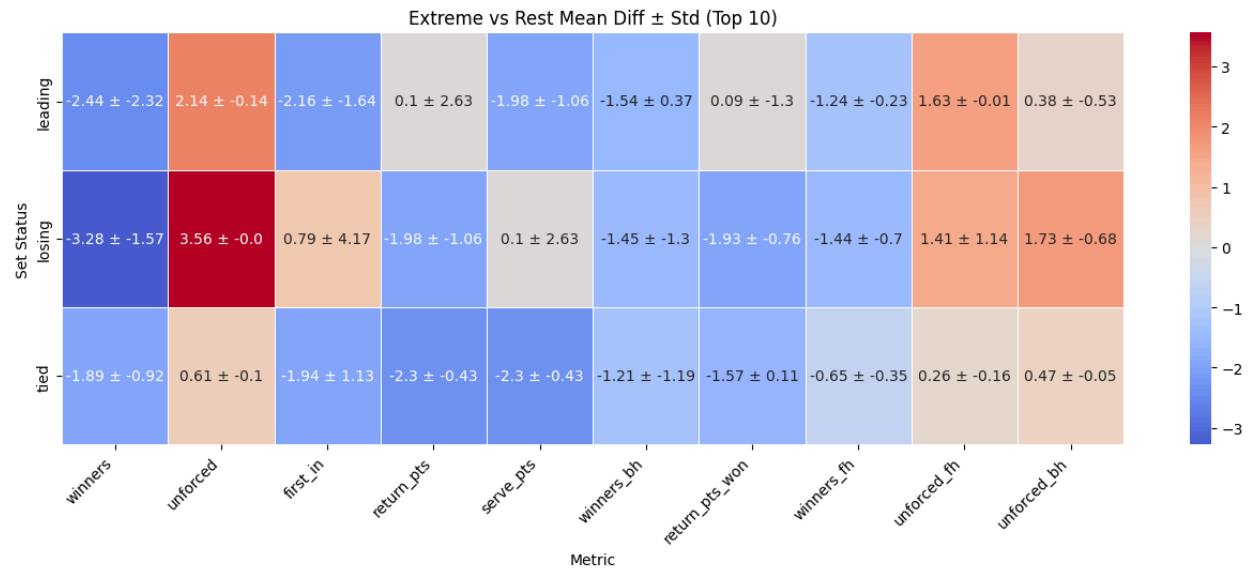


**Image 12:** WTA - *Extreme vs Rest Metrics Set Status*

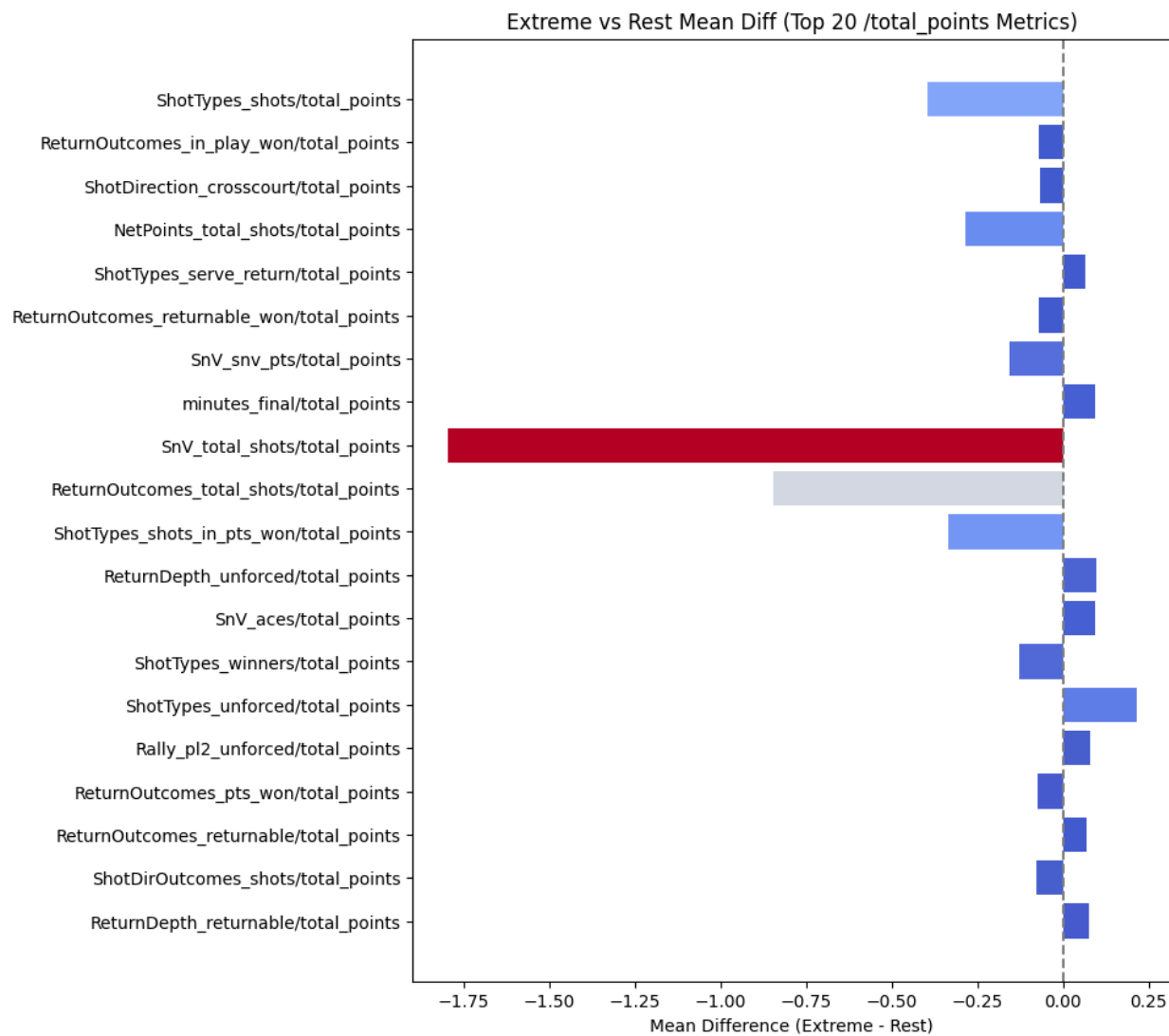


**Image 13:** WTA - Extreme vs Rest Metrics Mean Diff for Total Points

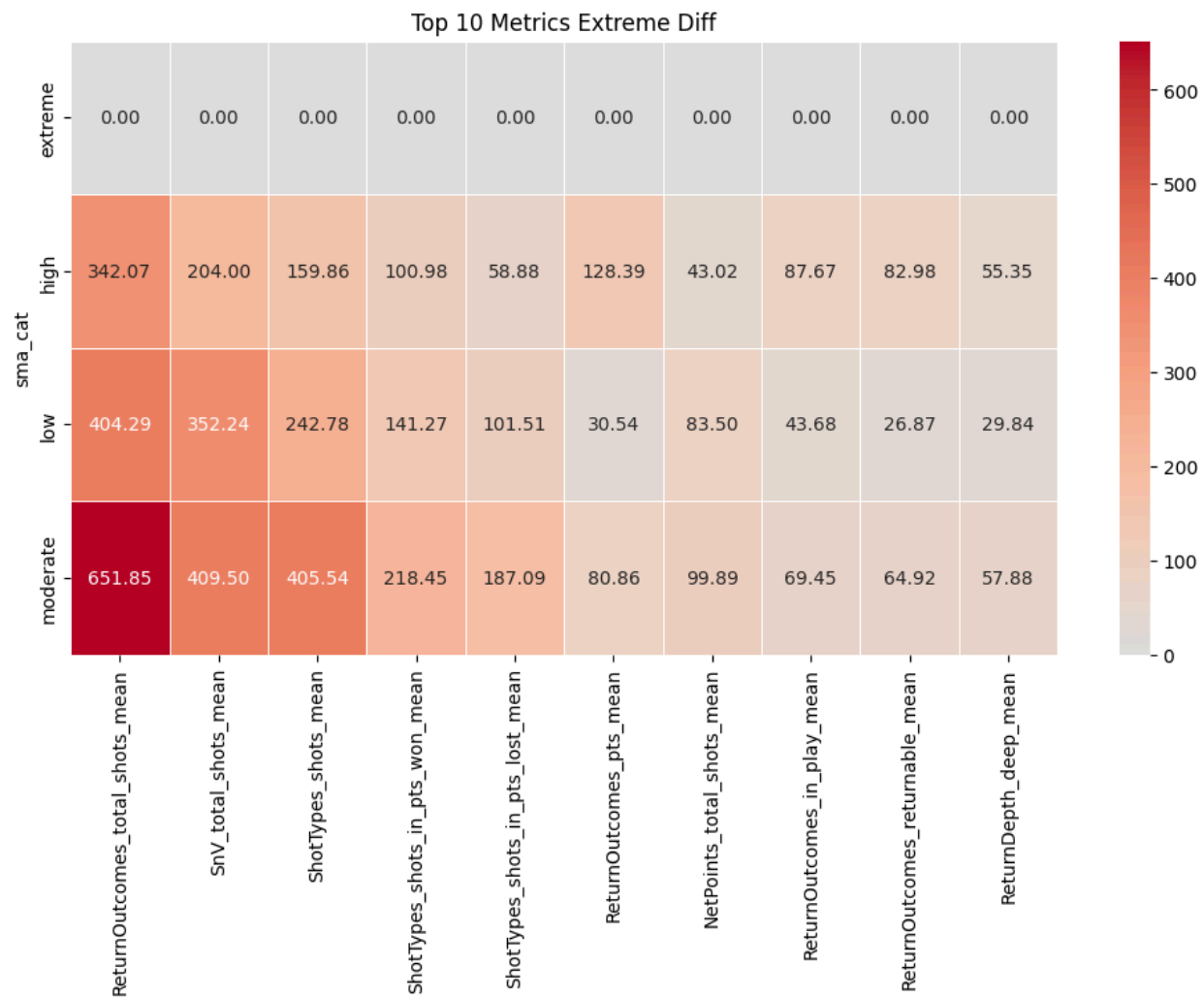


**Image 14:** WTA - SMA Categories Top 10 Metrics for Extreme Diff Mean



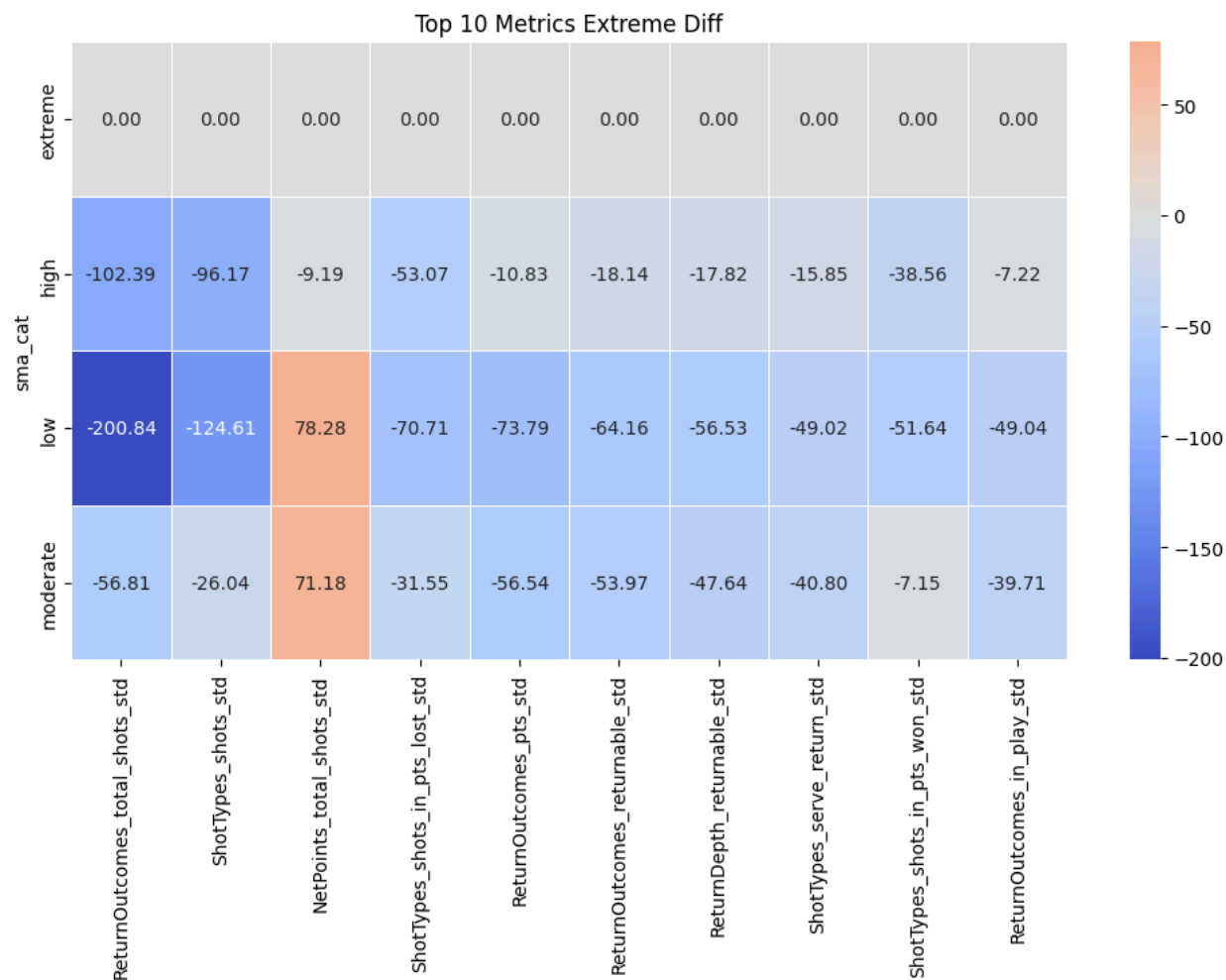
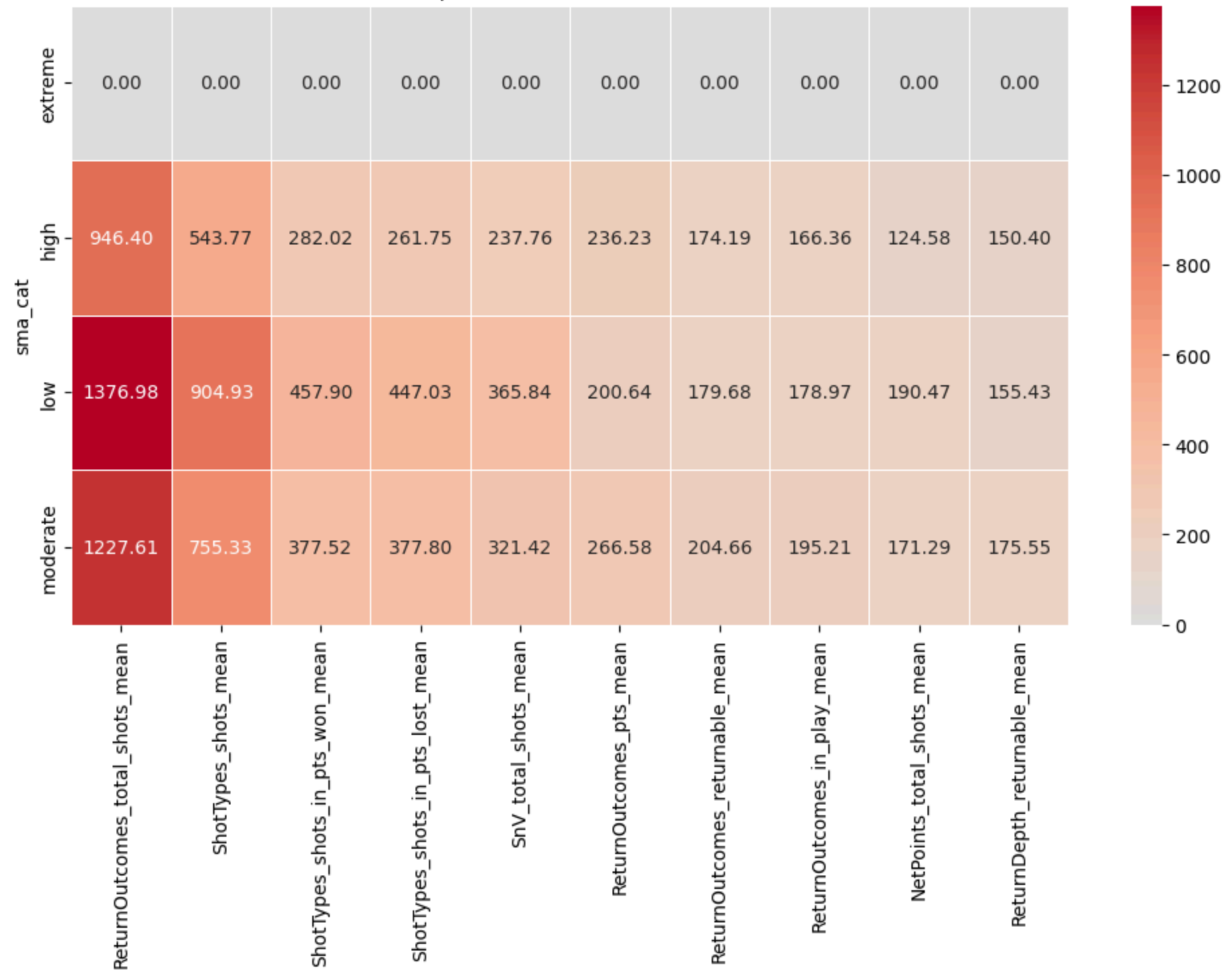


**Image 15:** WTA - SMA Categories Top 10 Metrics for Extreme Diff Std

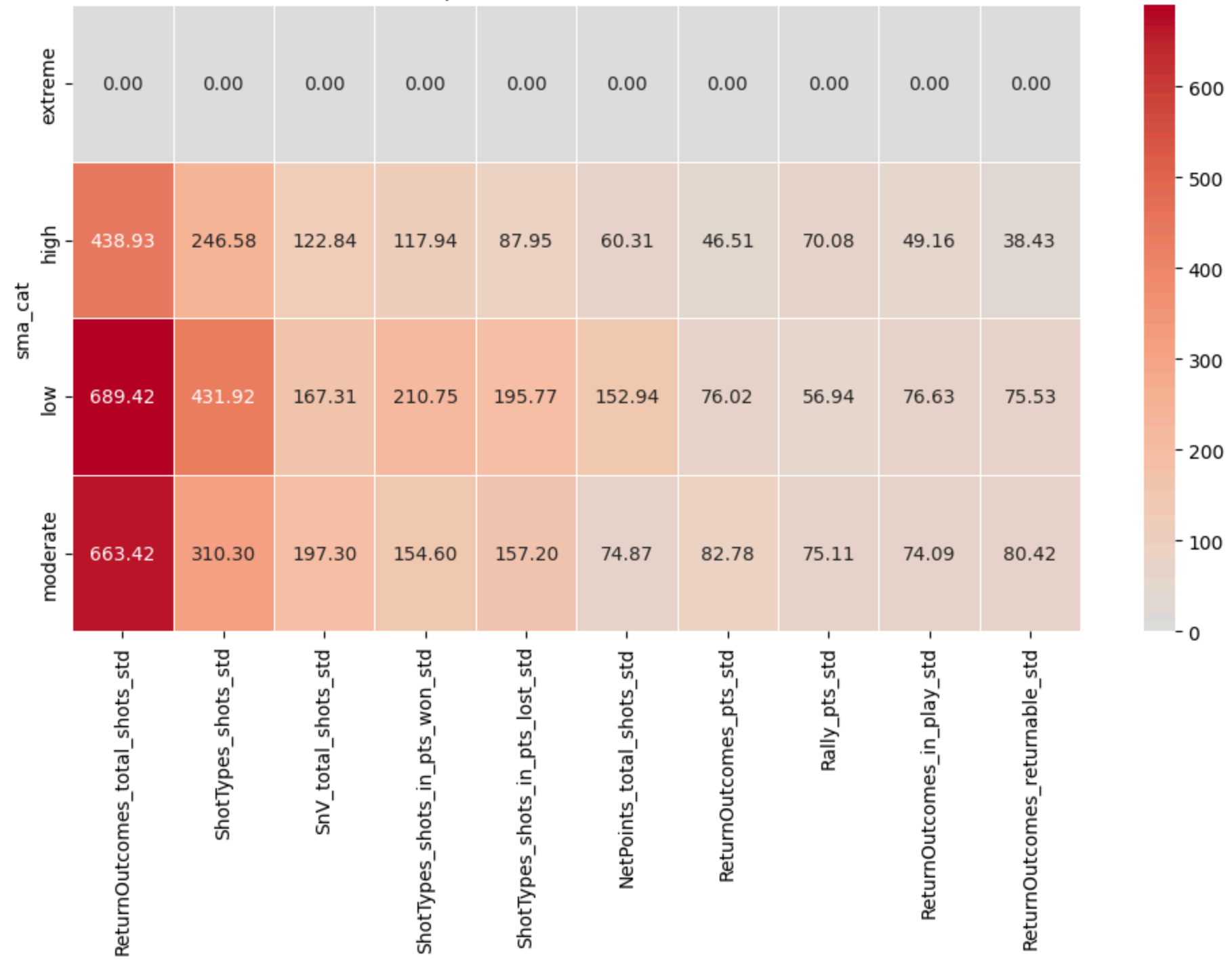
Top 10 Metrics Extreme Diff



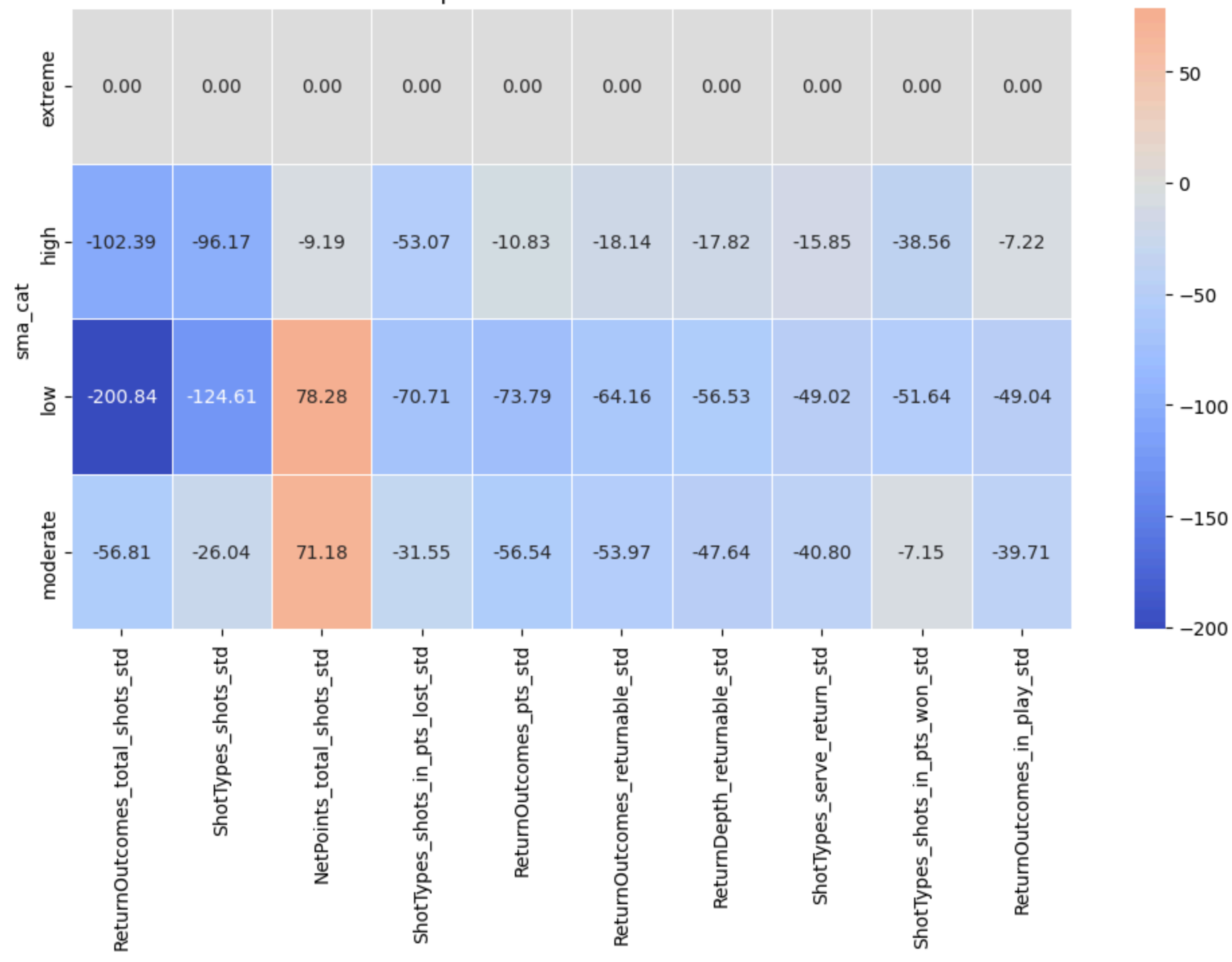
Top 10 Metrics Extreme Diff



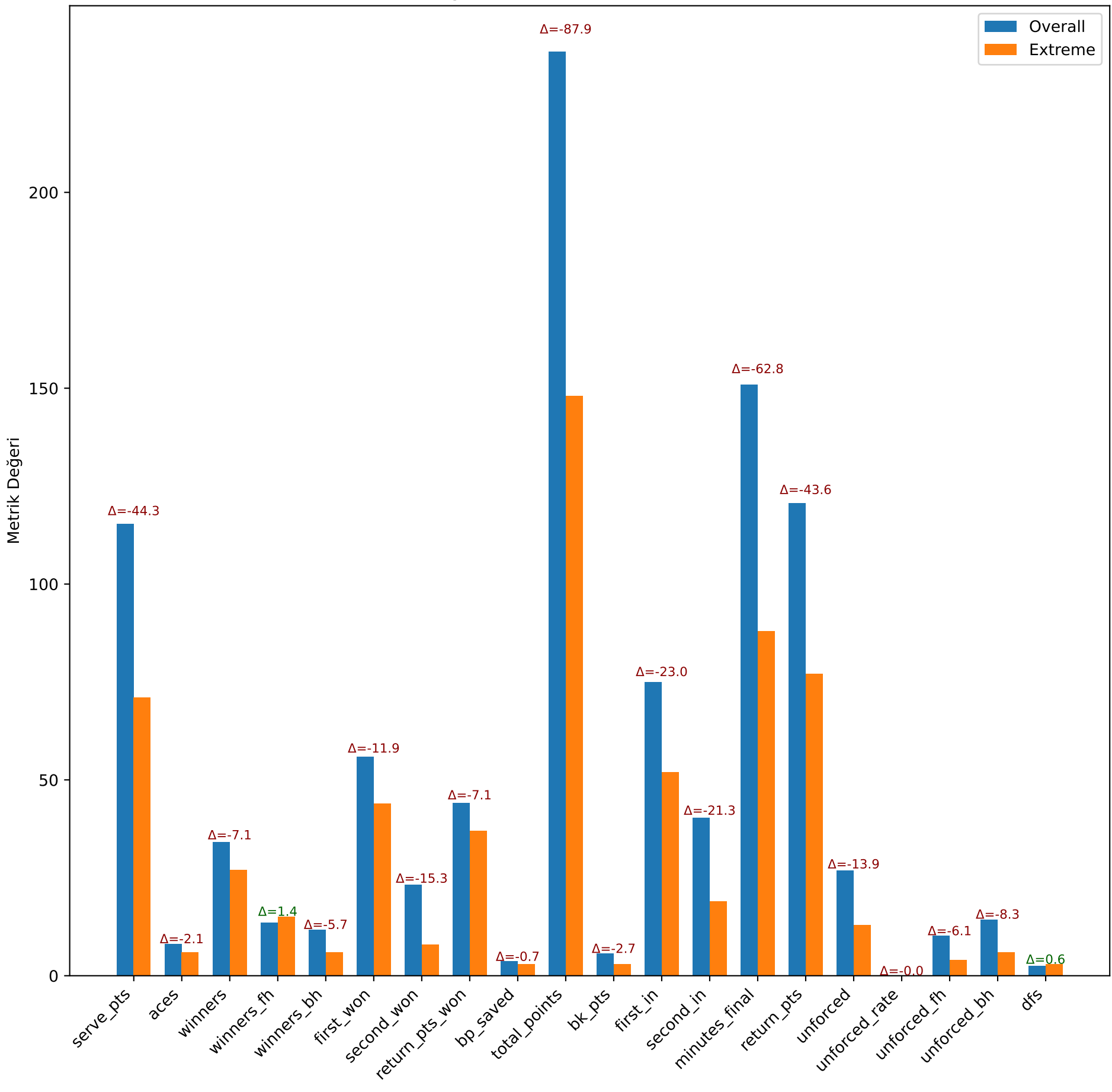
Top 10 Metrics Extreme Diff



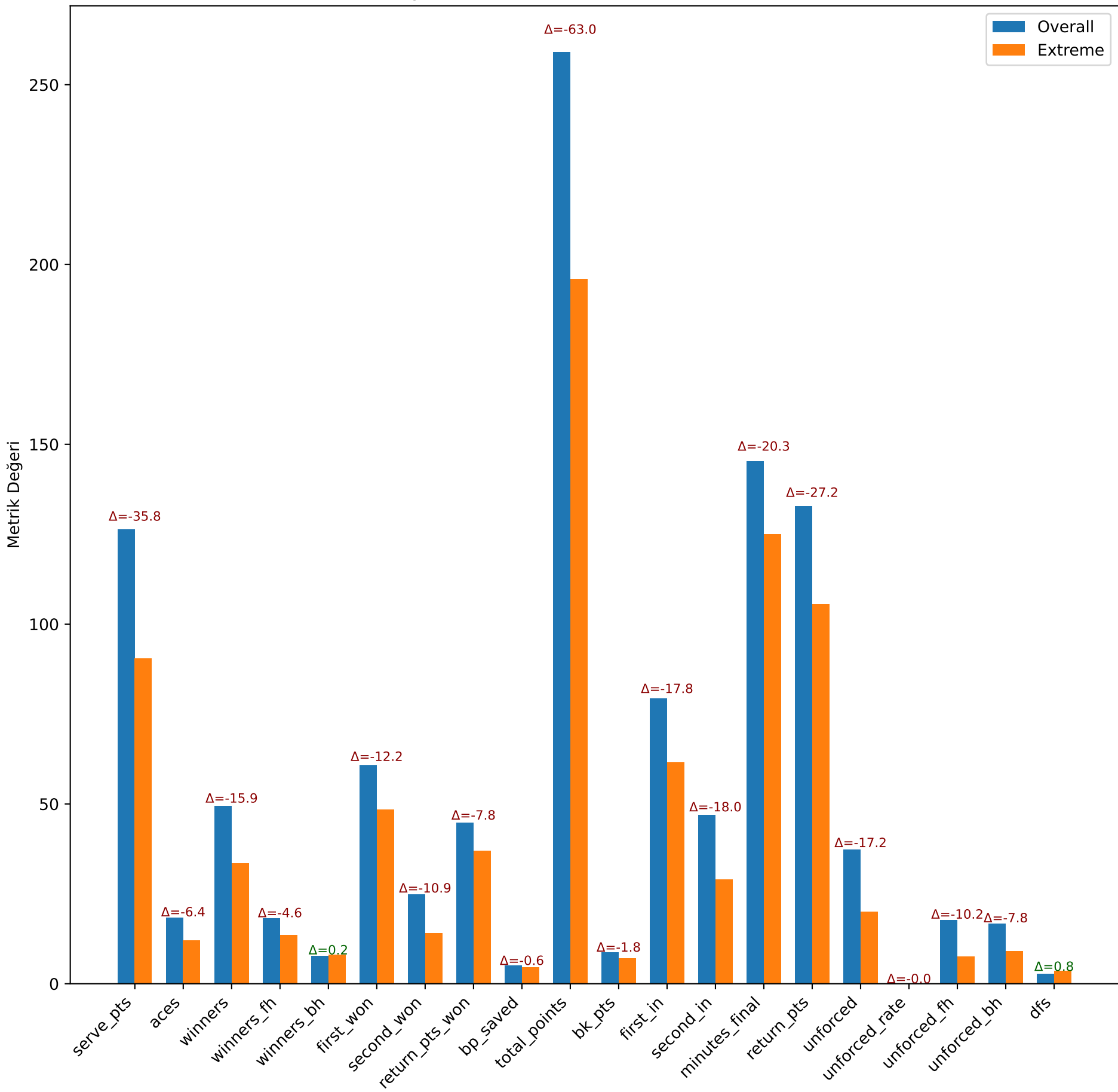
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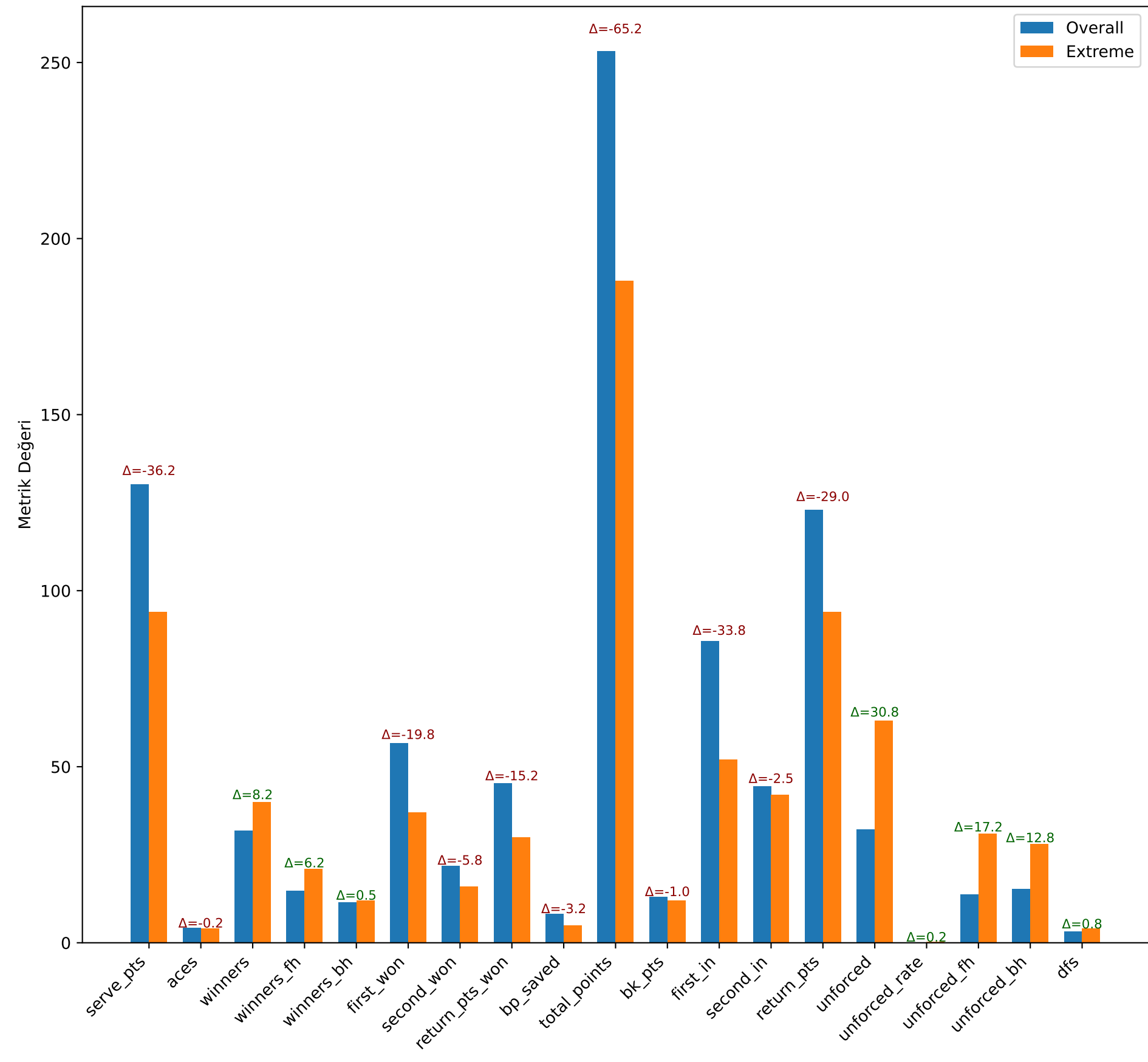
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Andy Roddick: Extreme vs Overall Performans

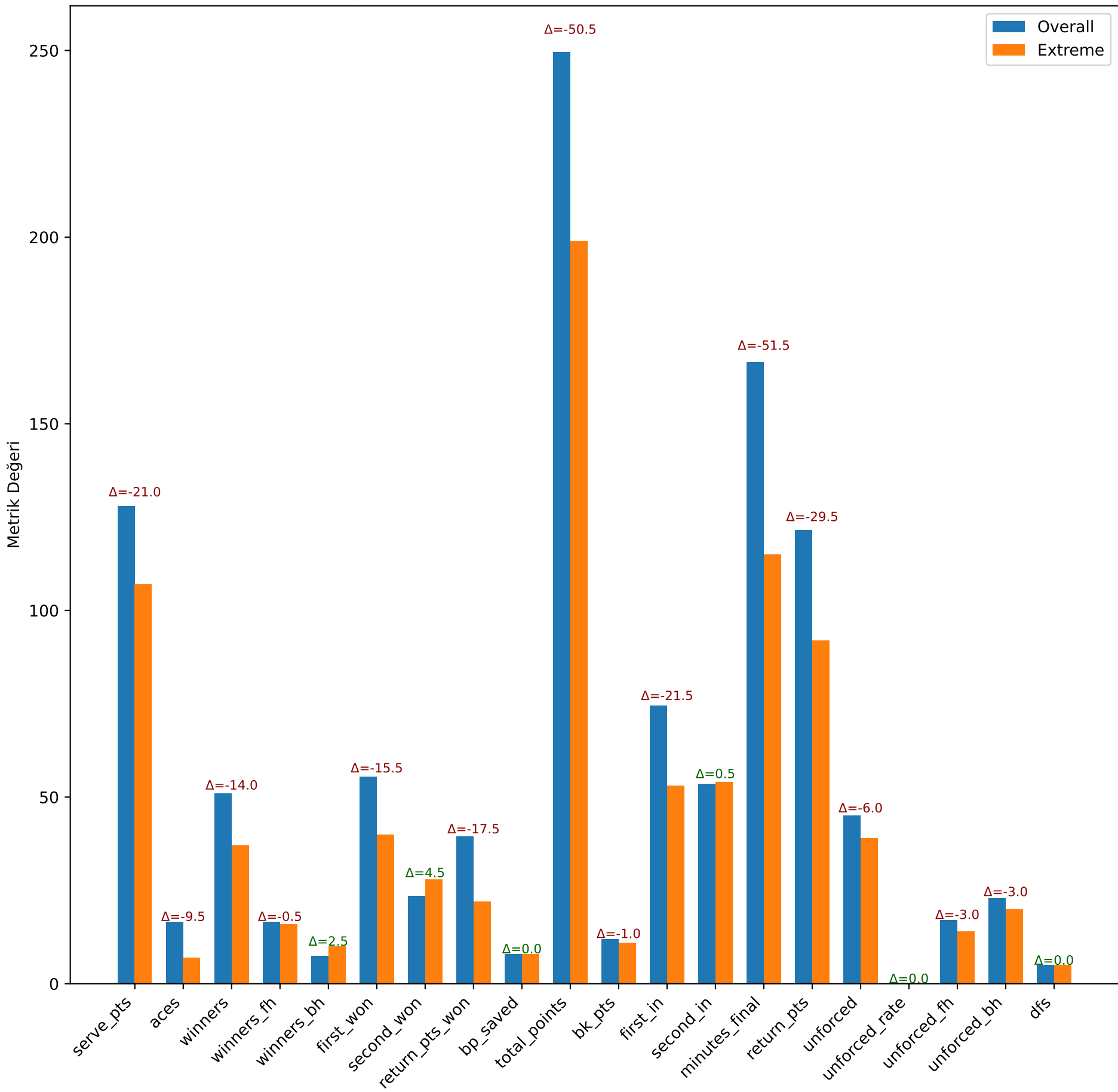


Gilles Simon: Extreme vs Overall Performans

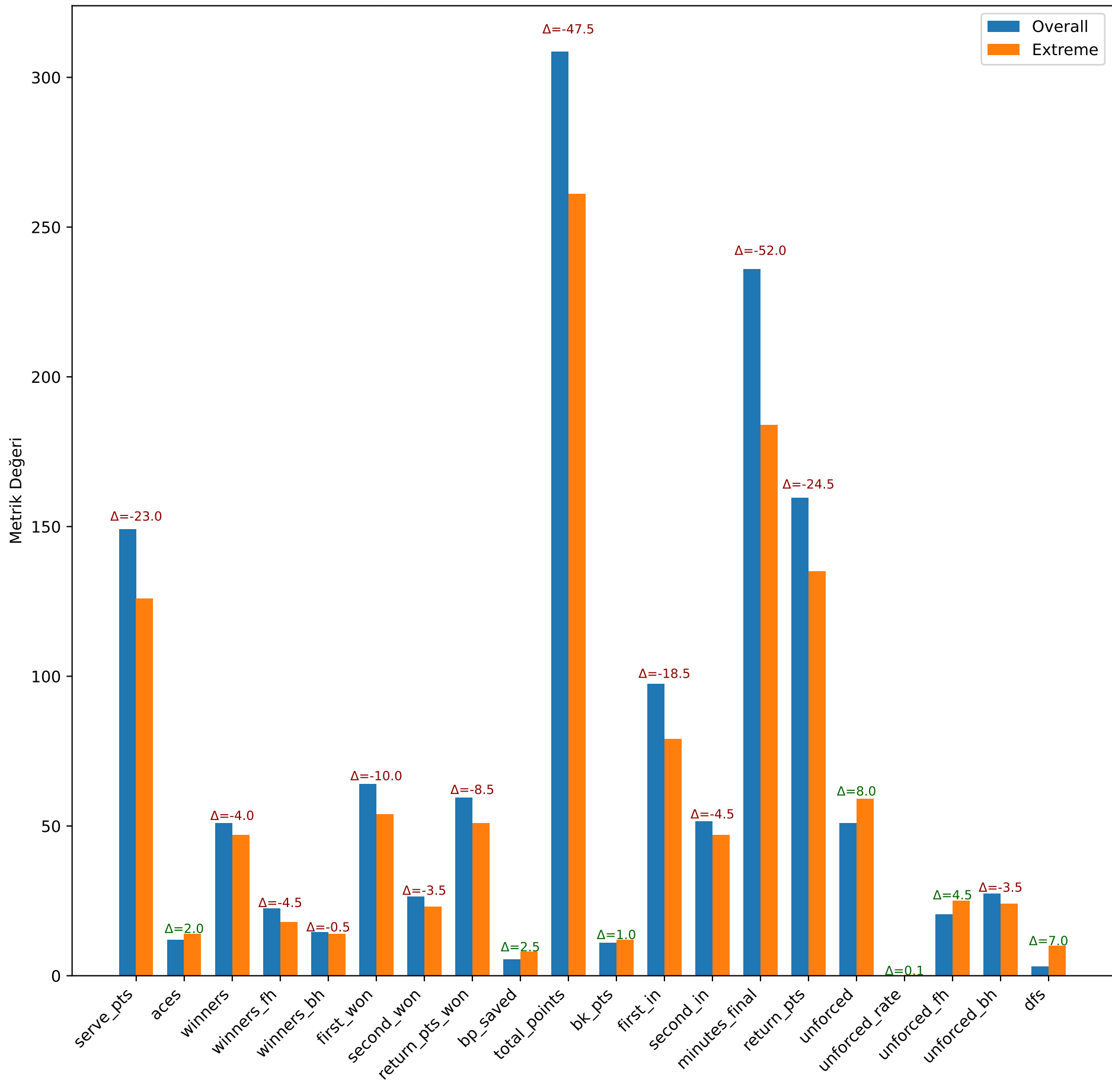




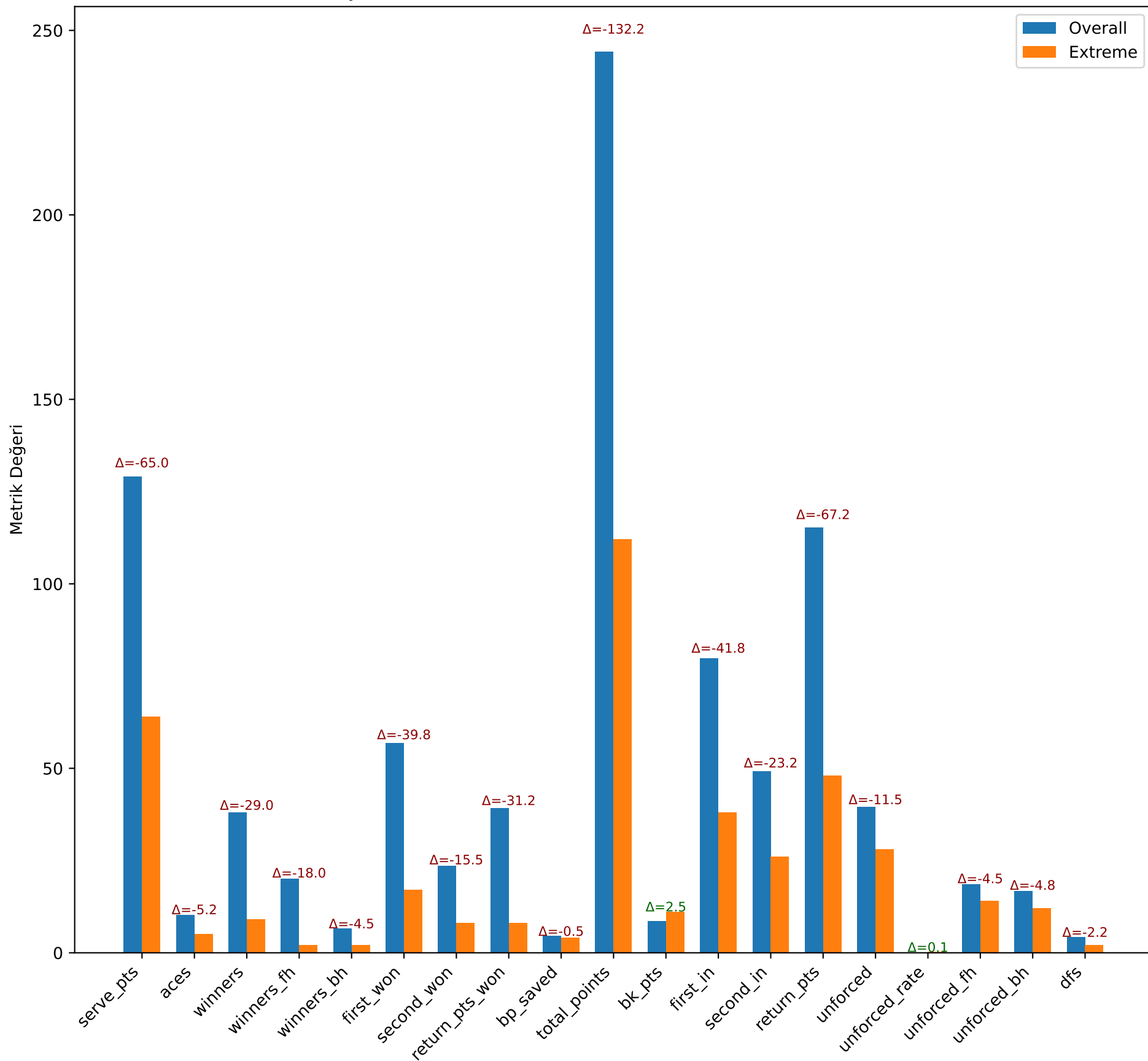
Jan Lennard Struff: Extreme vs Overall Performans



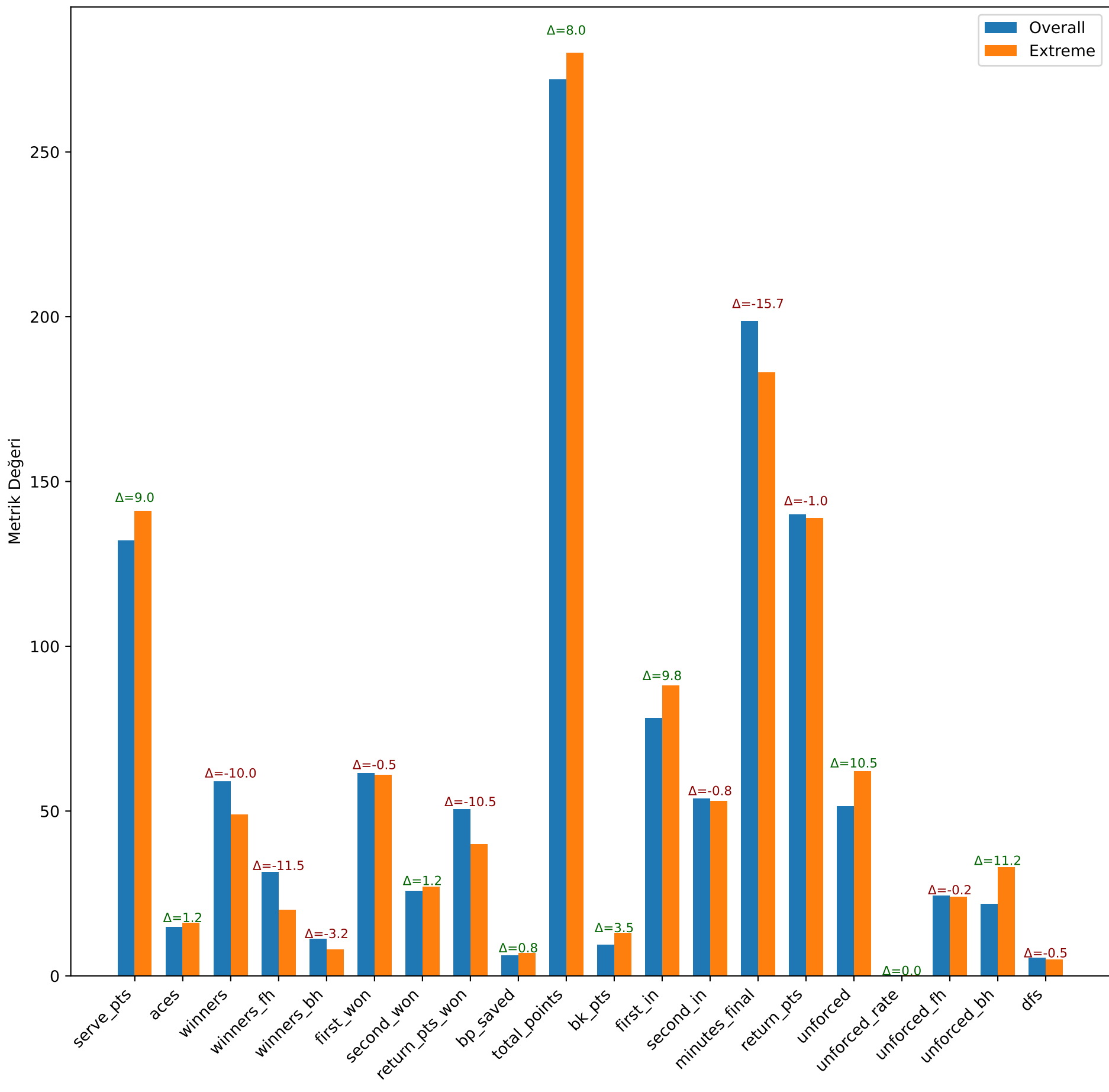
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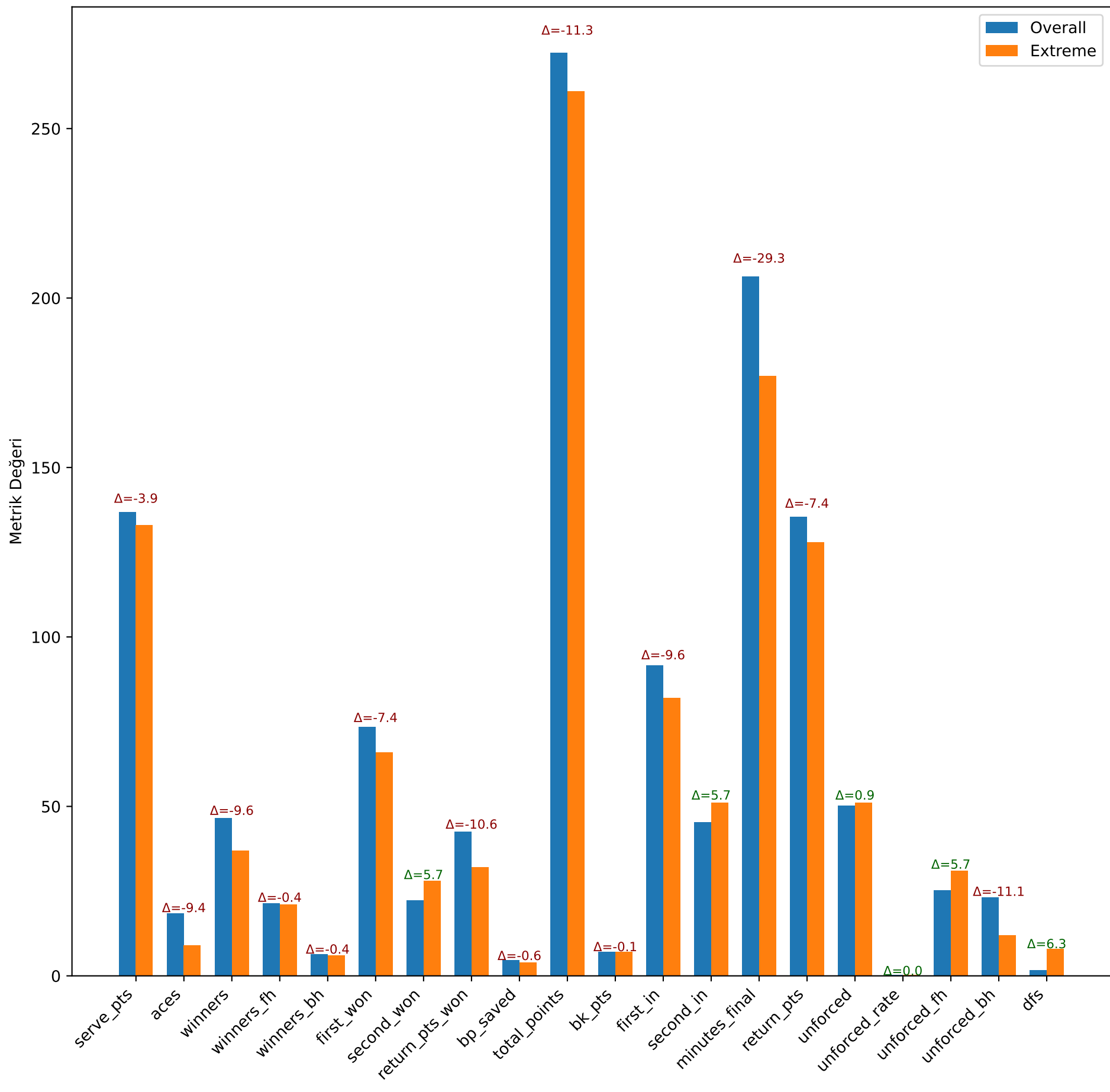
Juan Martin Del Potro: Extreme vs Overall Performans



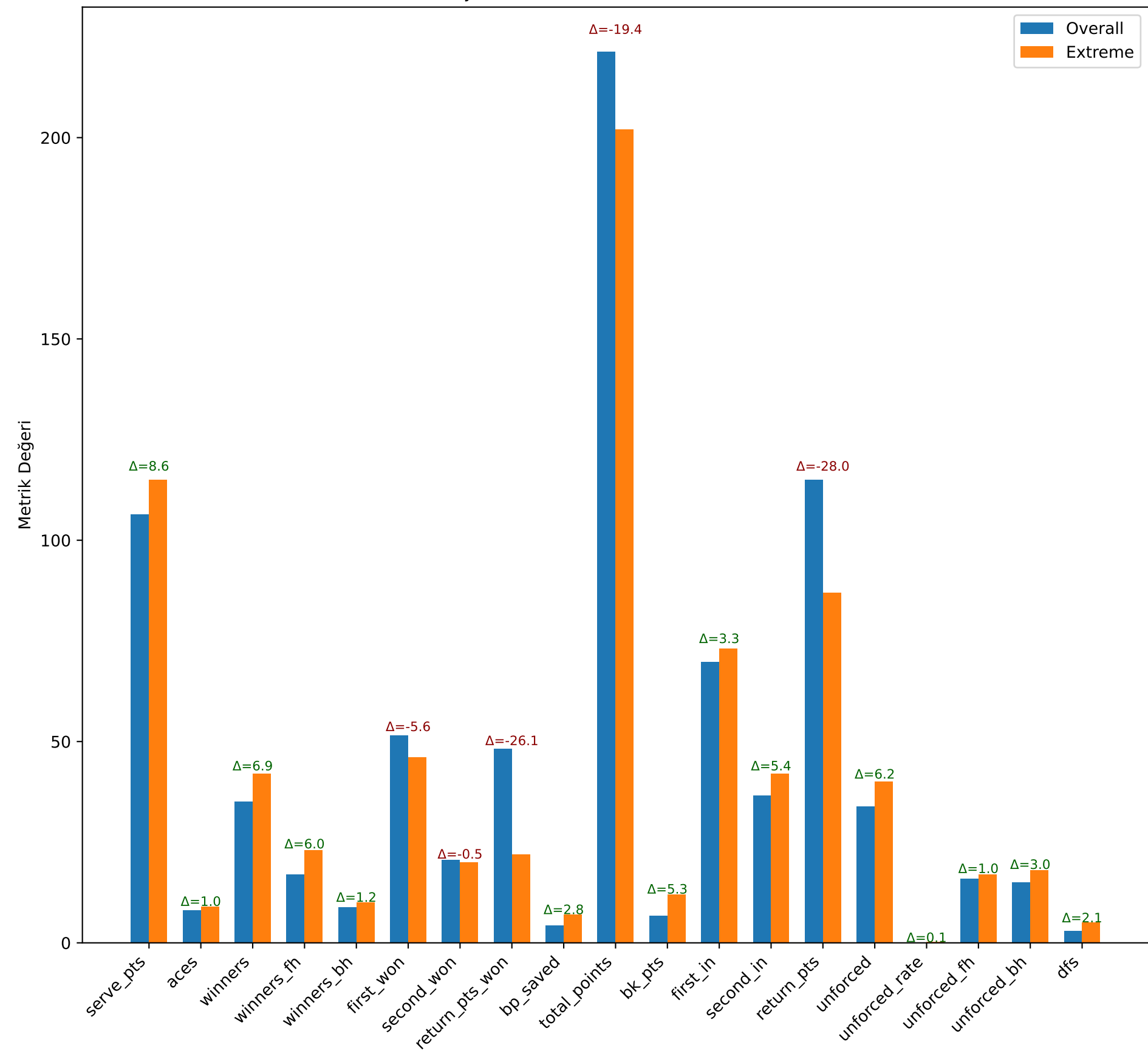
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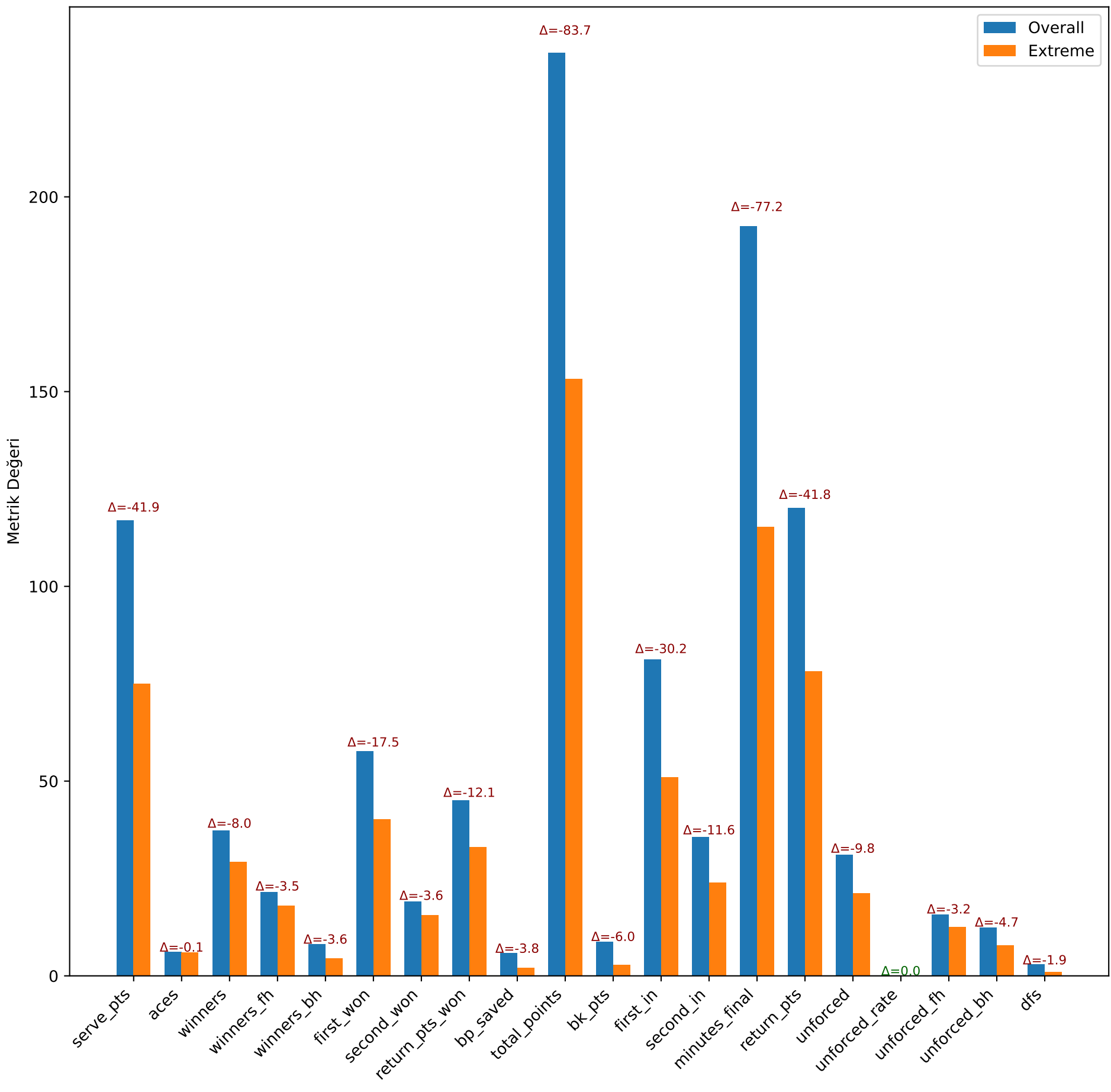
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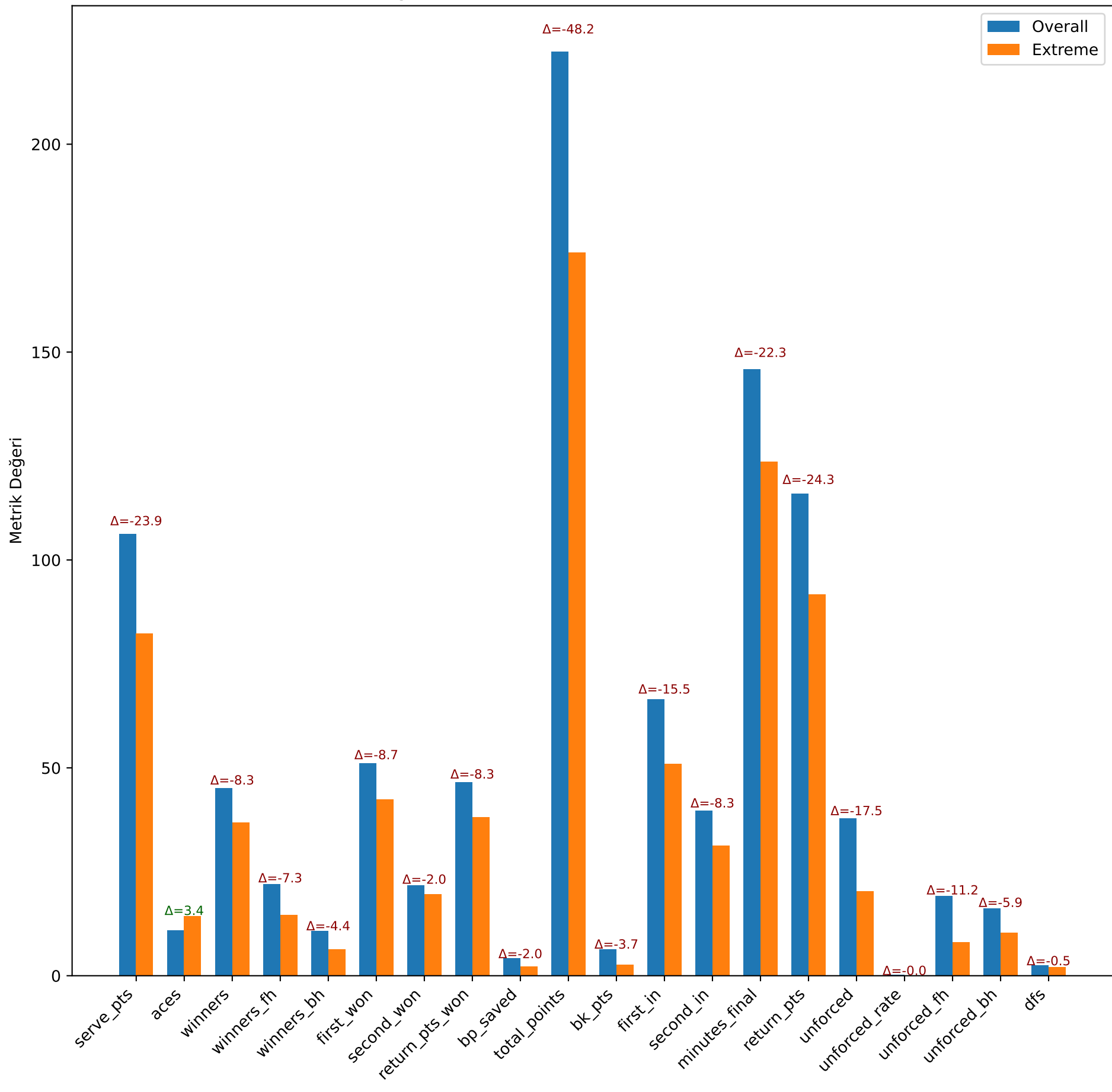
Novak Djokovic: Extreme vs Overall Performans



# Rafael Nadal: Extreme vs Overall Performans

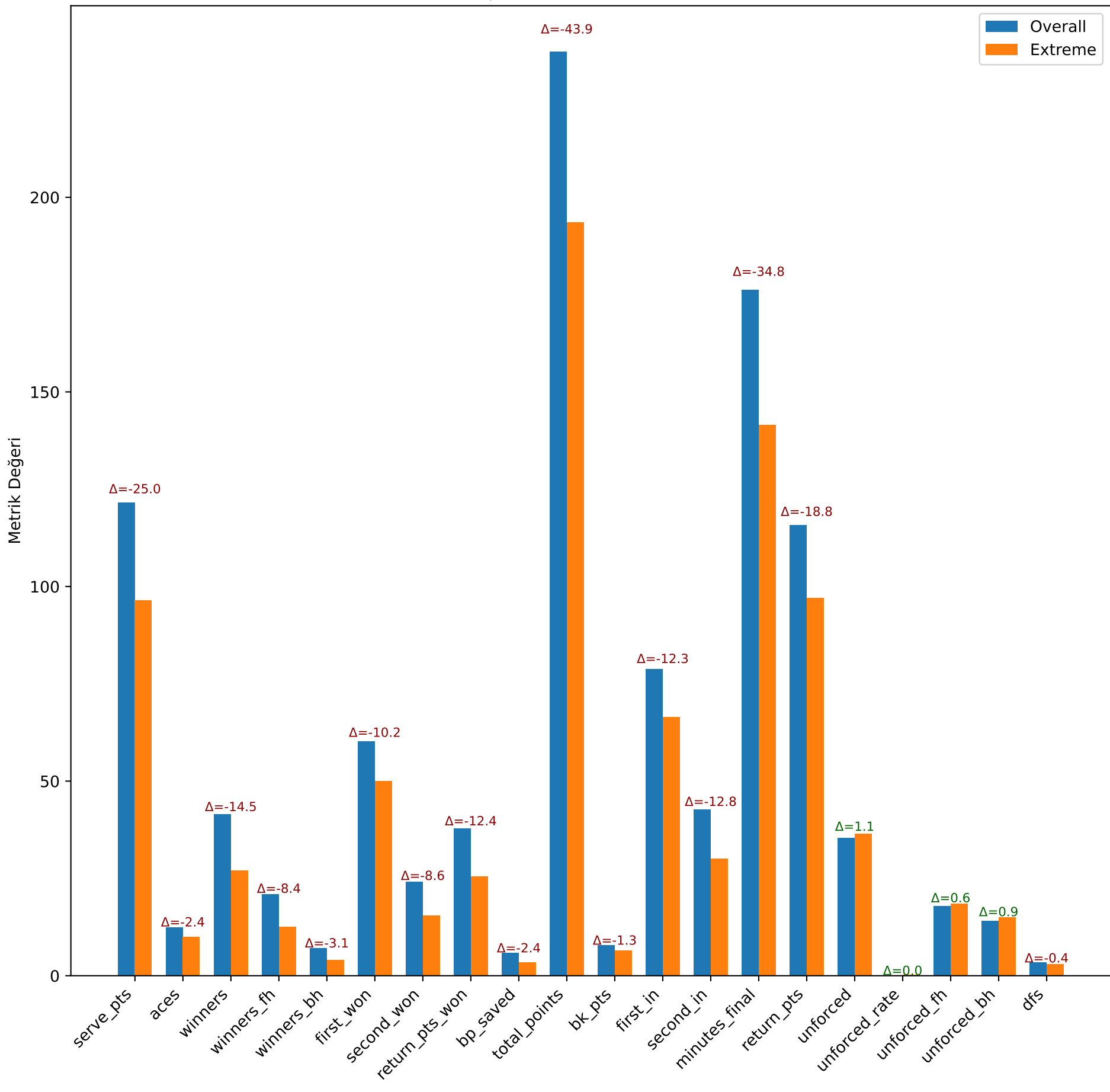


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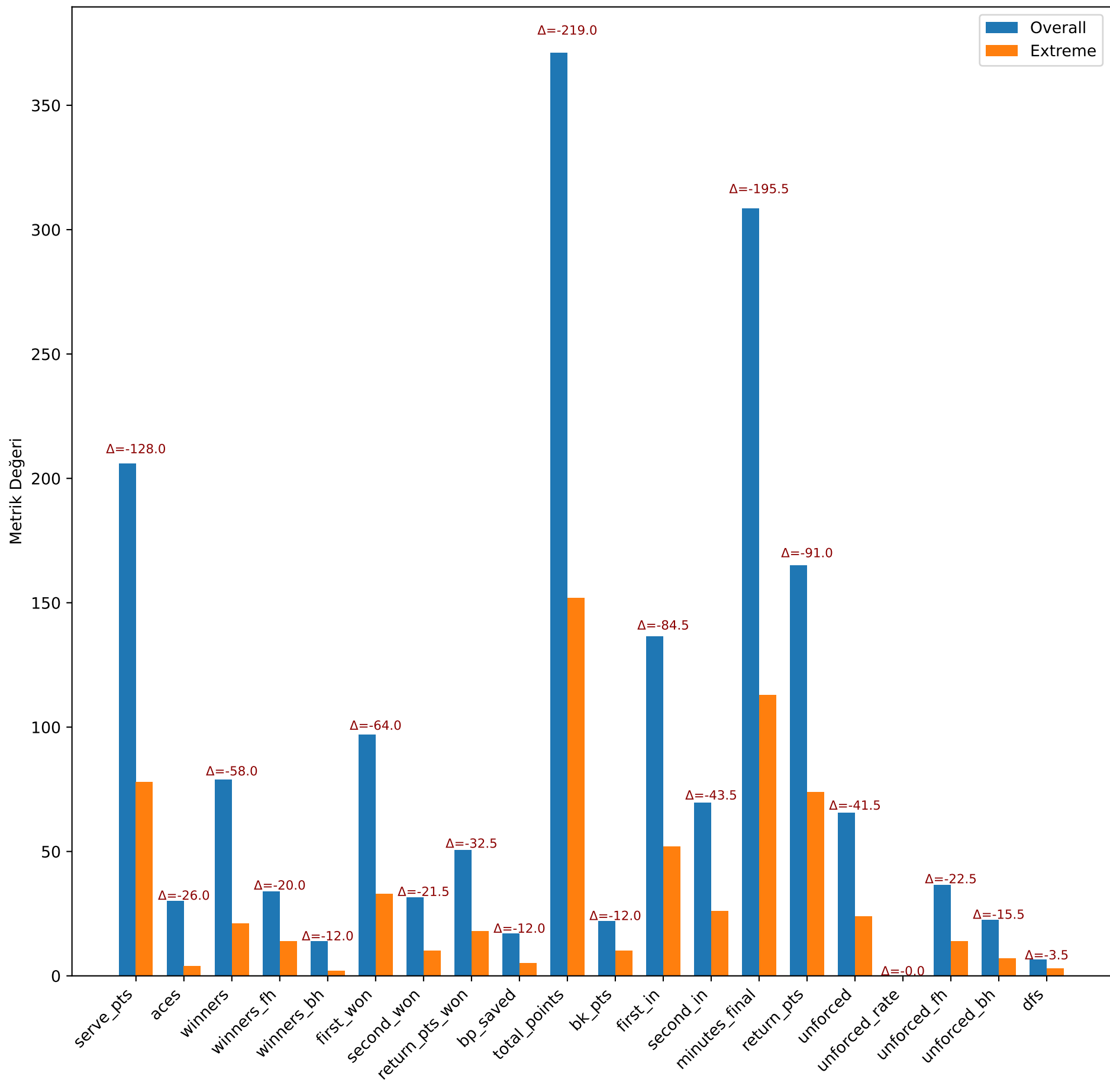




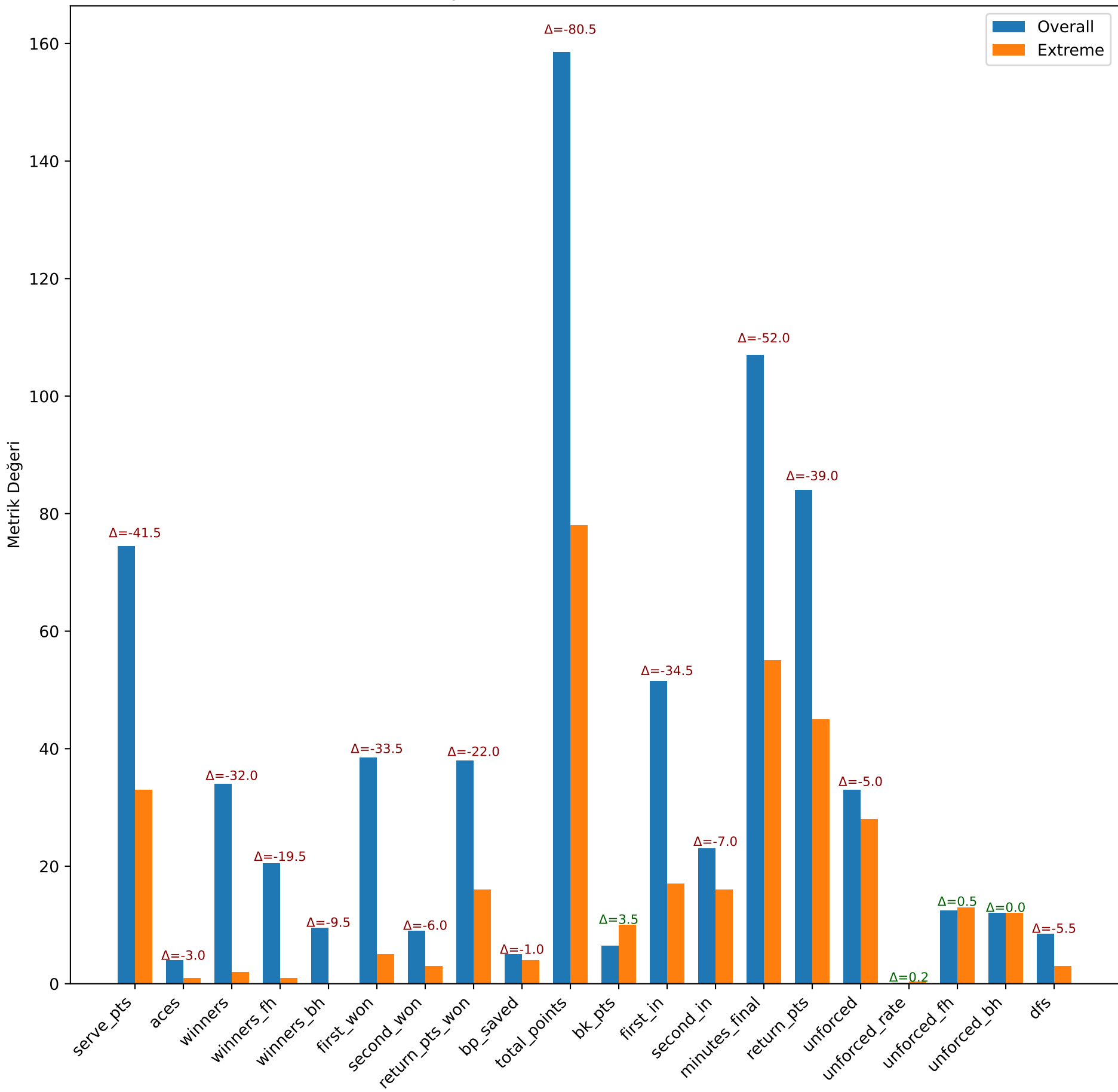
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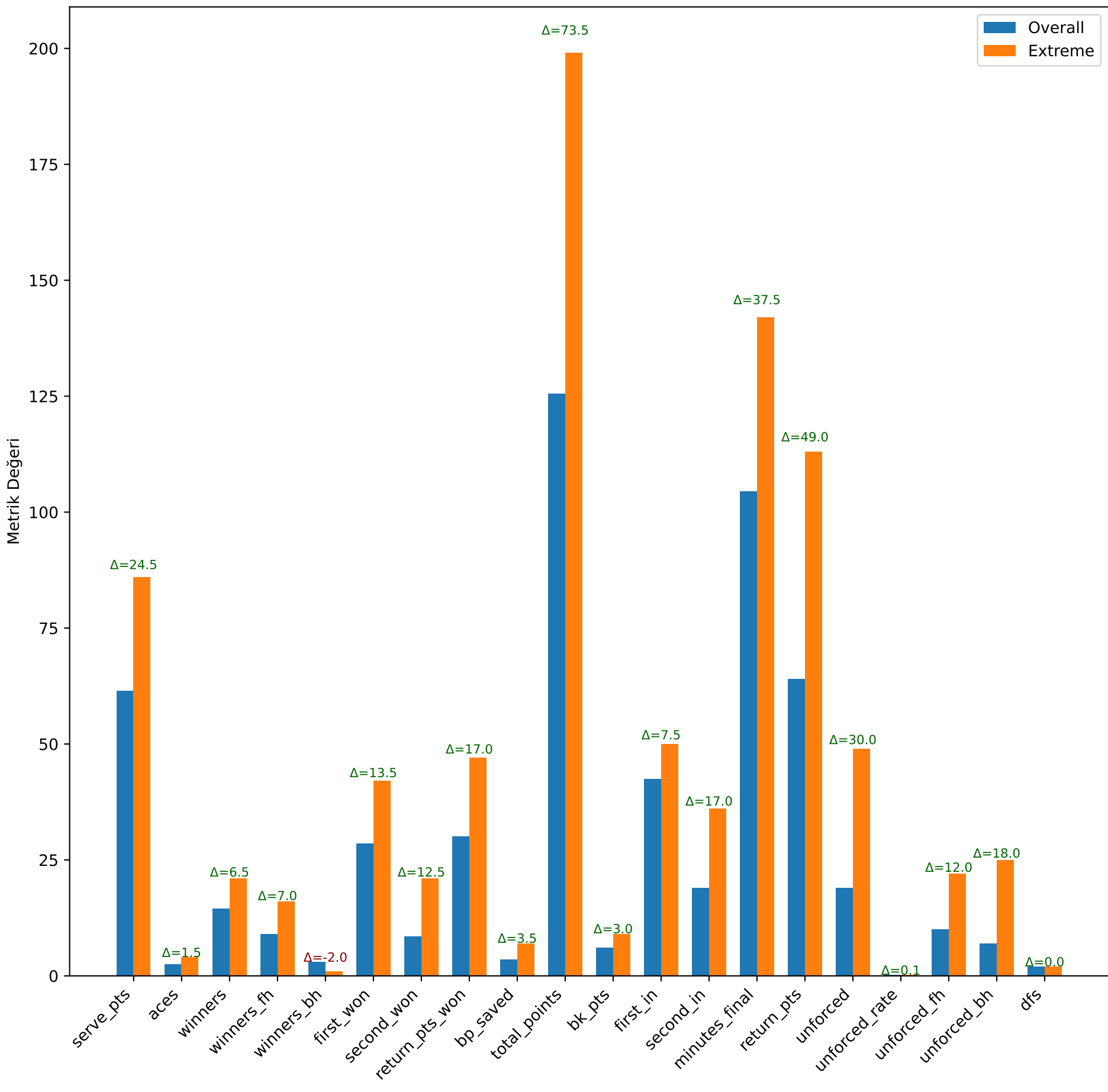
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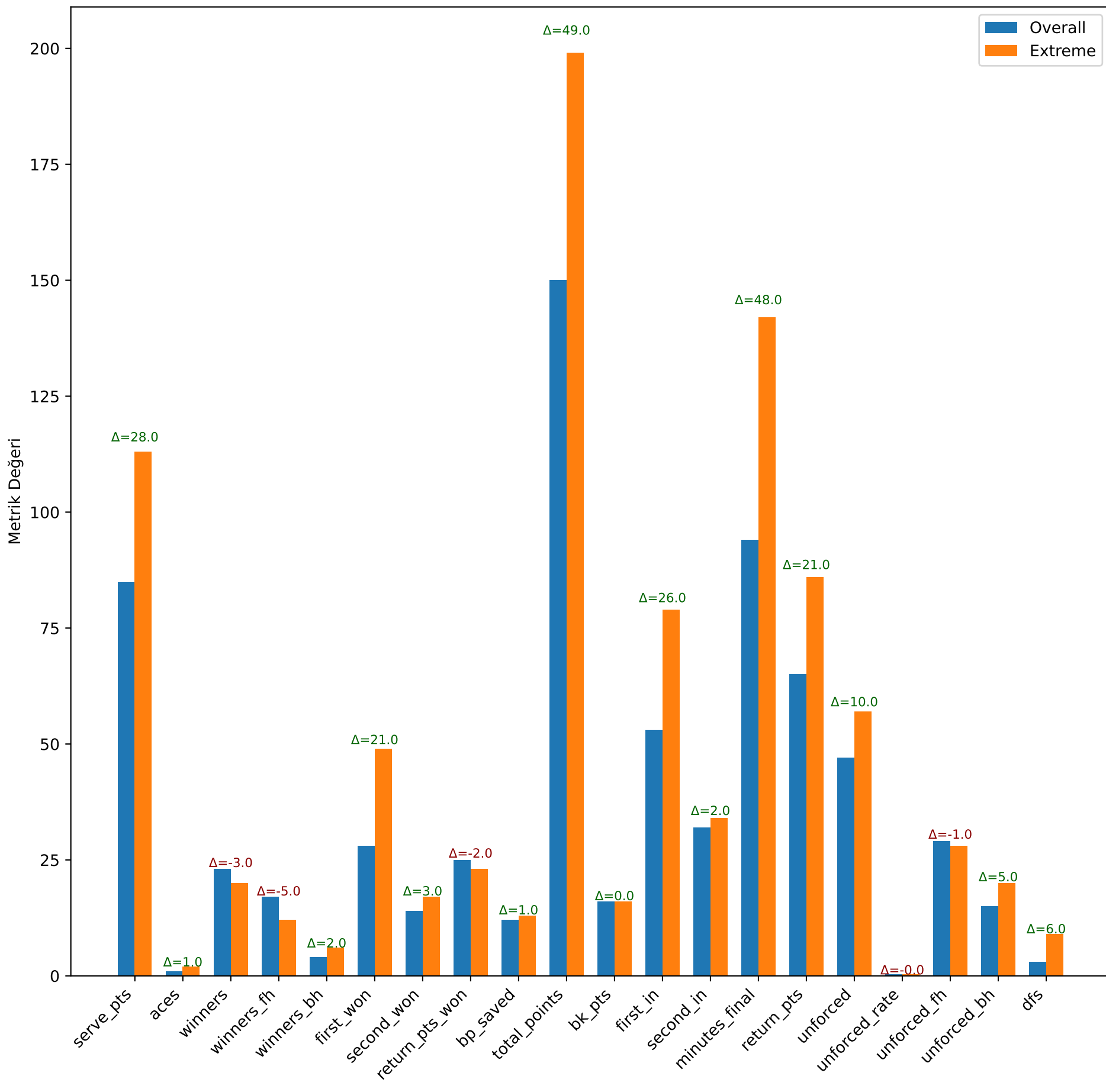
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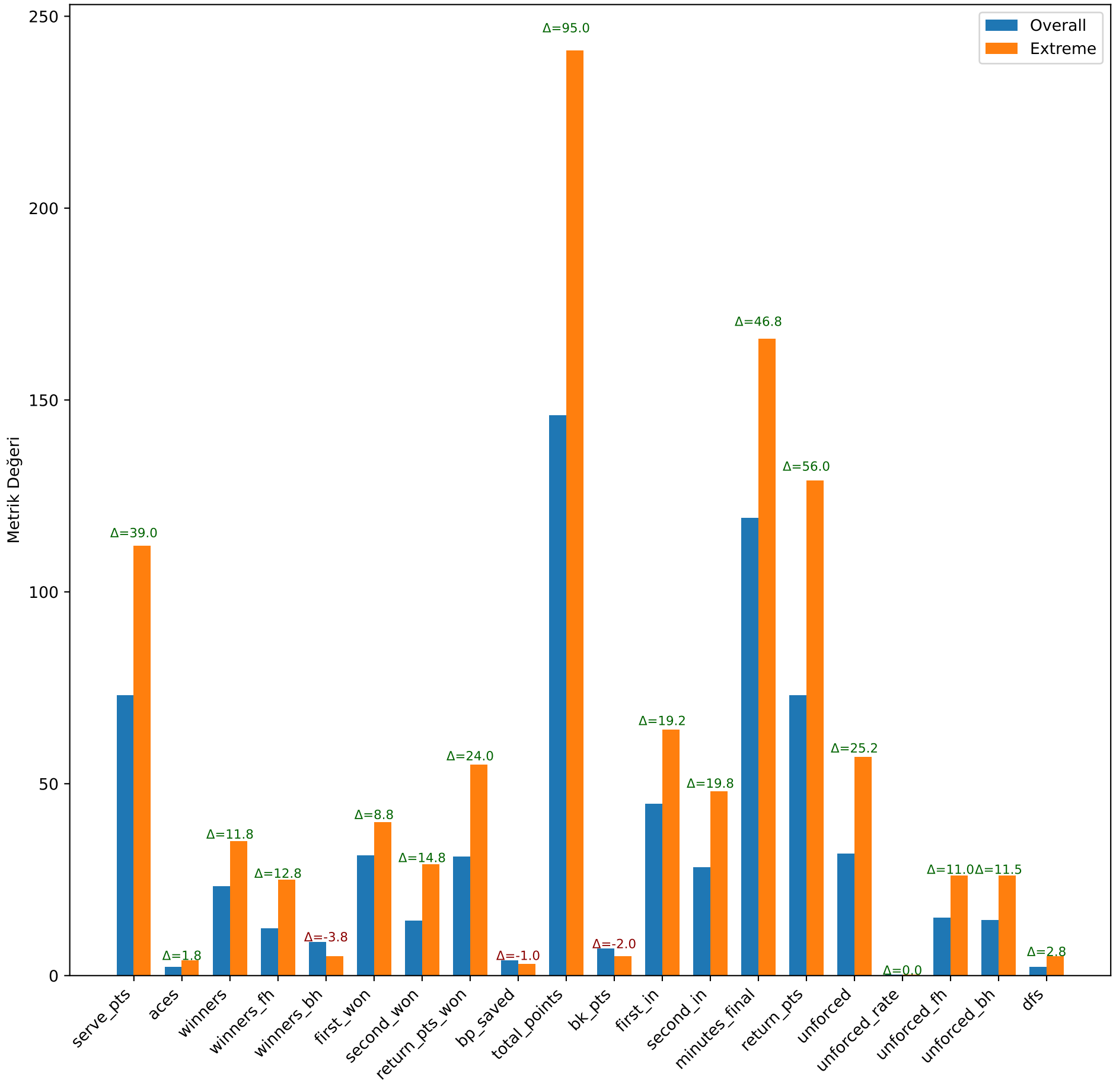
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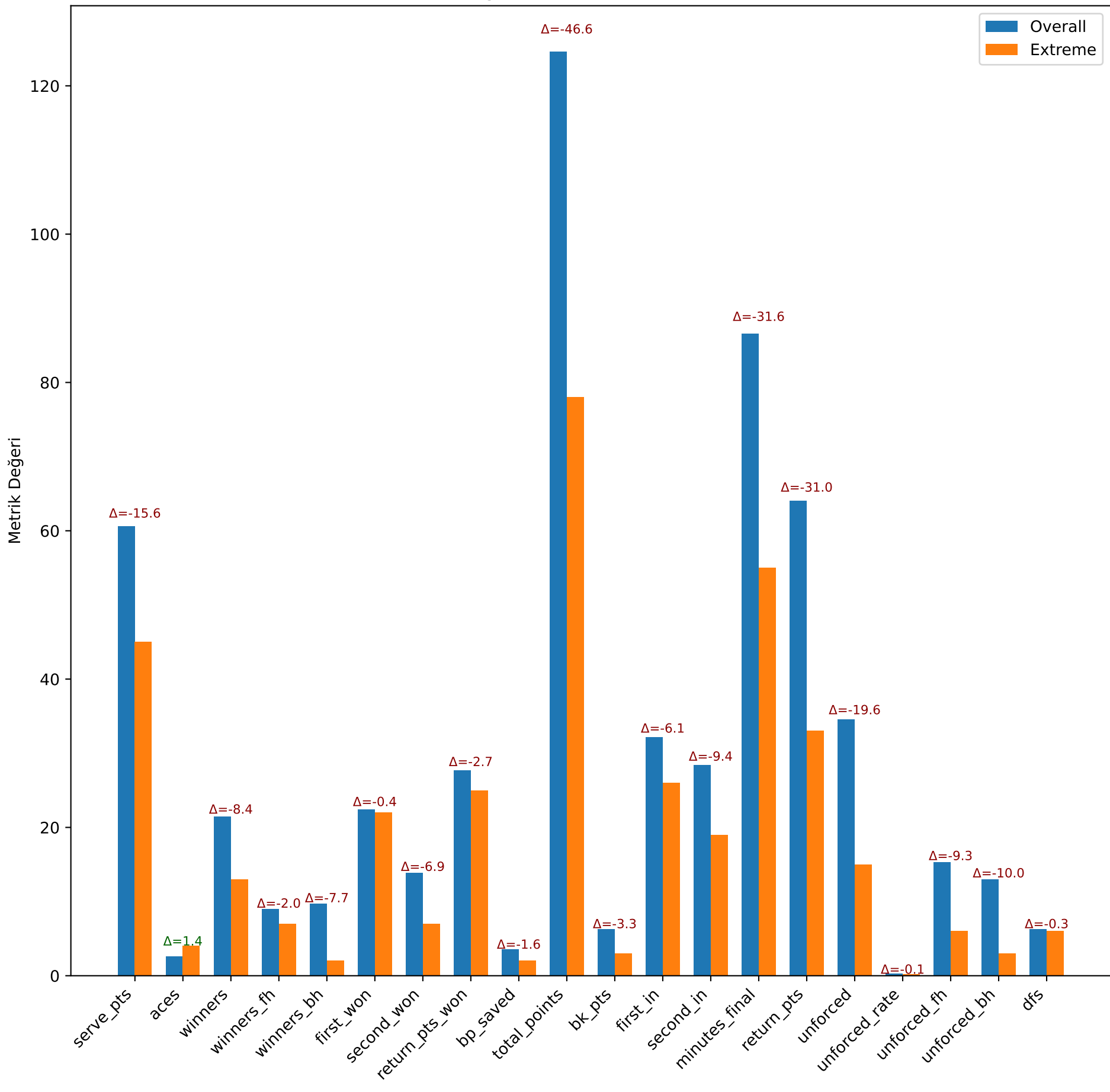
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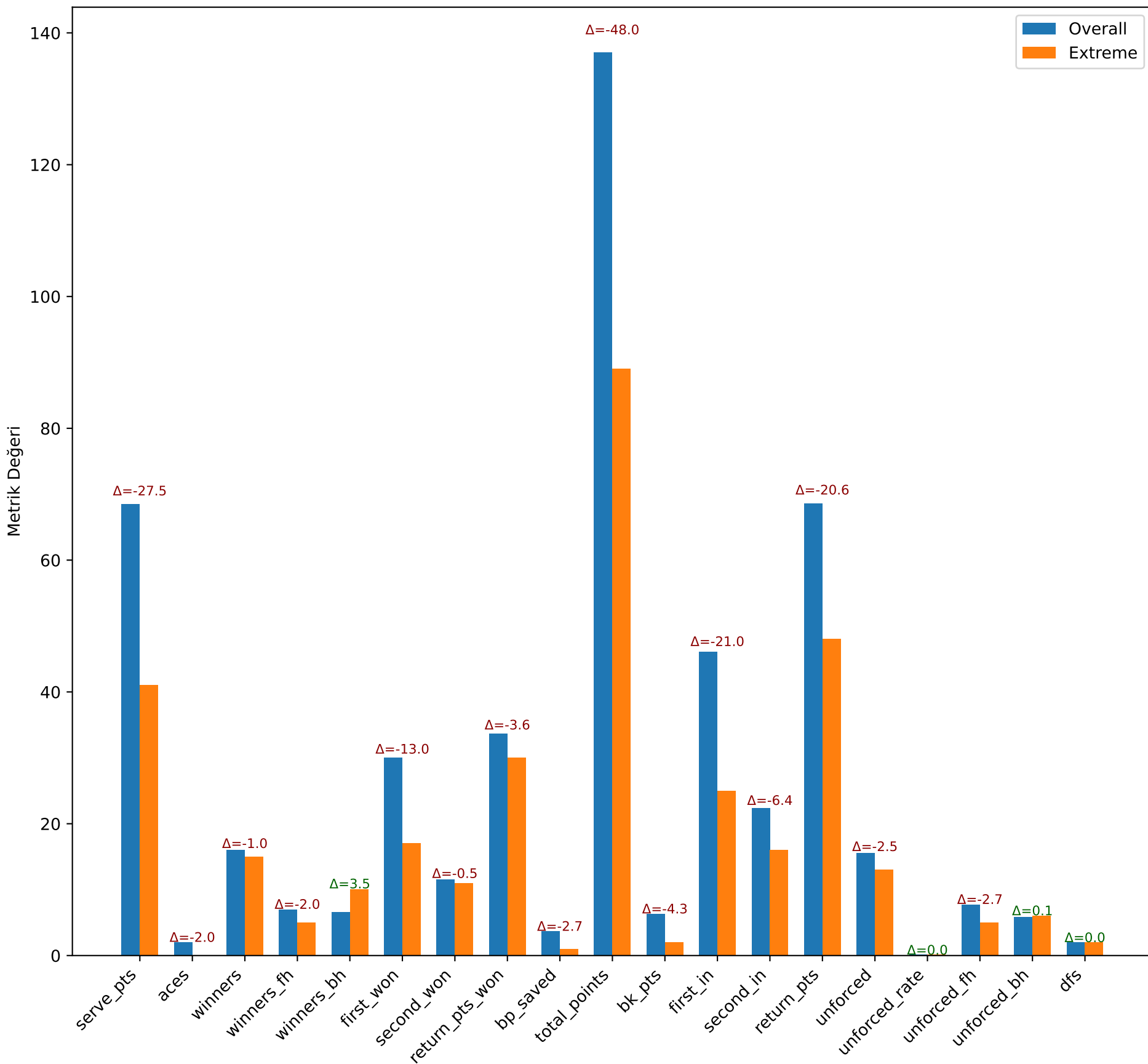
Bianca Andreescu: Extreme vs Overall Performans



Camila Giorgi: Extreme vs Overall Performans

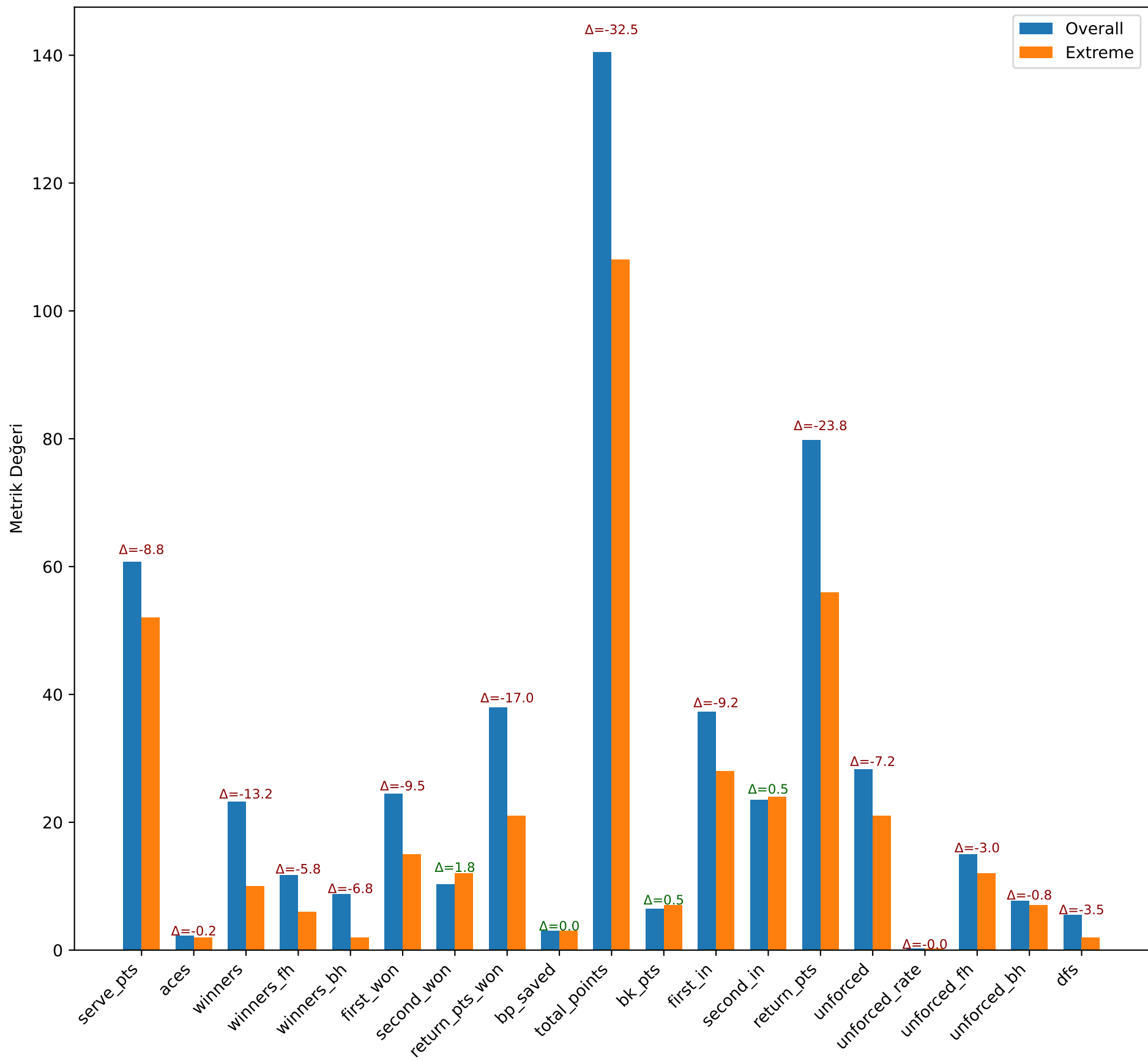


Caroline Wozniacki: Extreme vs Overall Performans

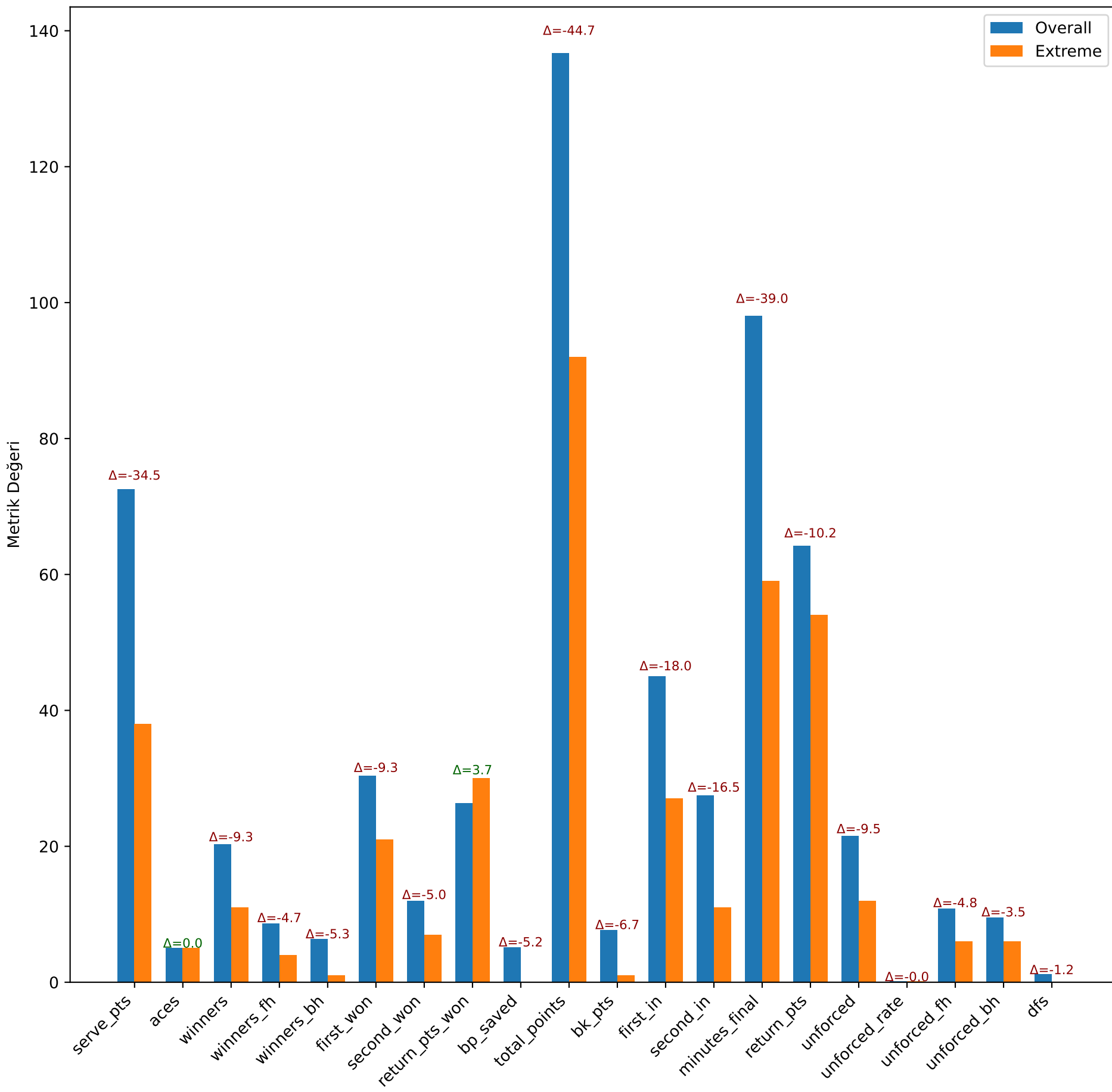




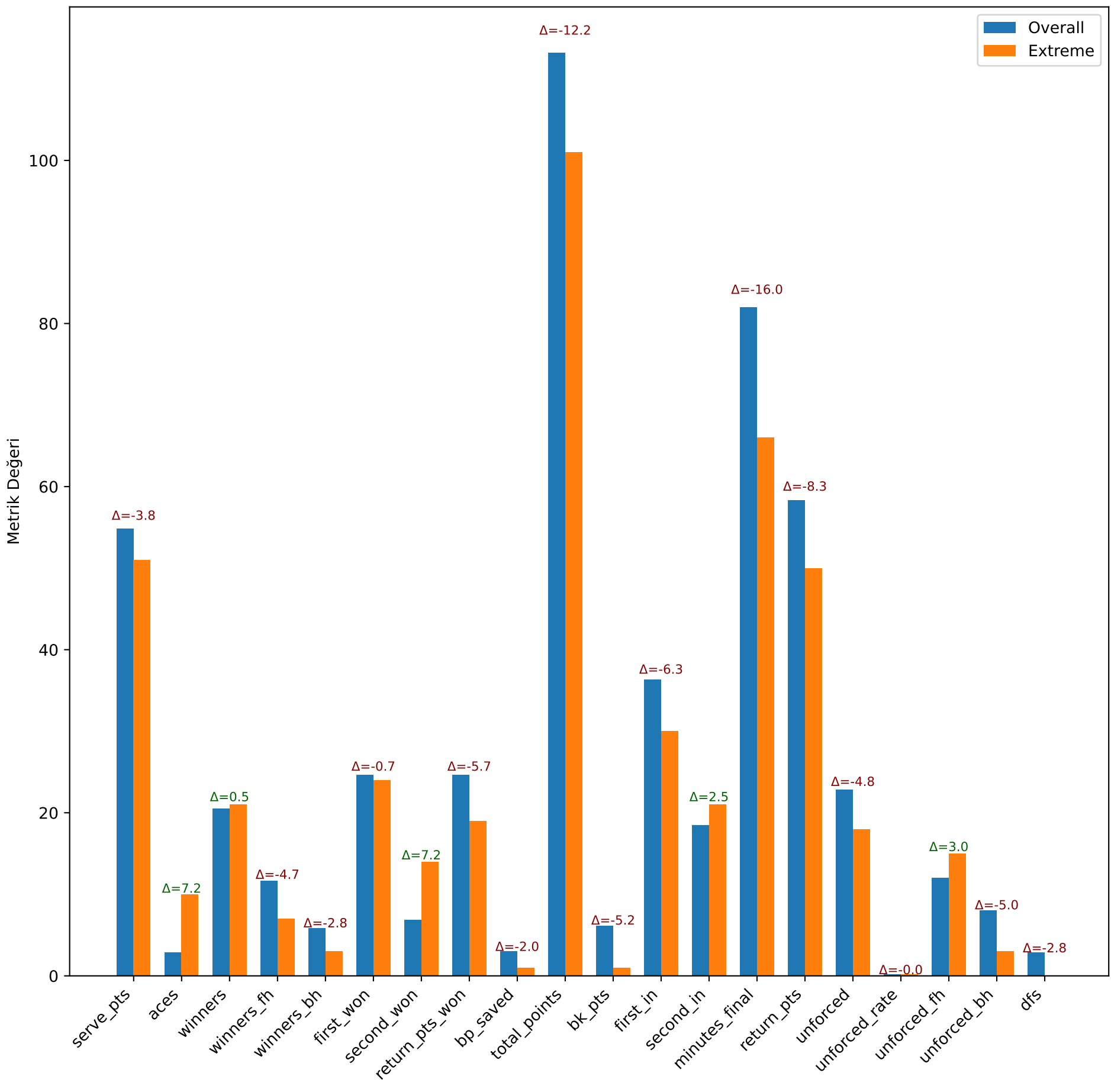
Daniela Hantuchova: Extreme vs Overall Performans



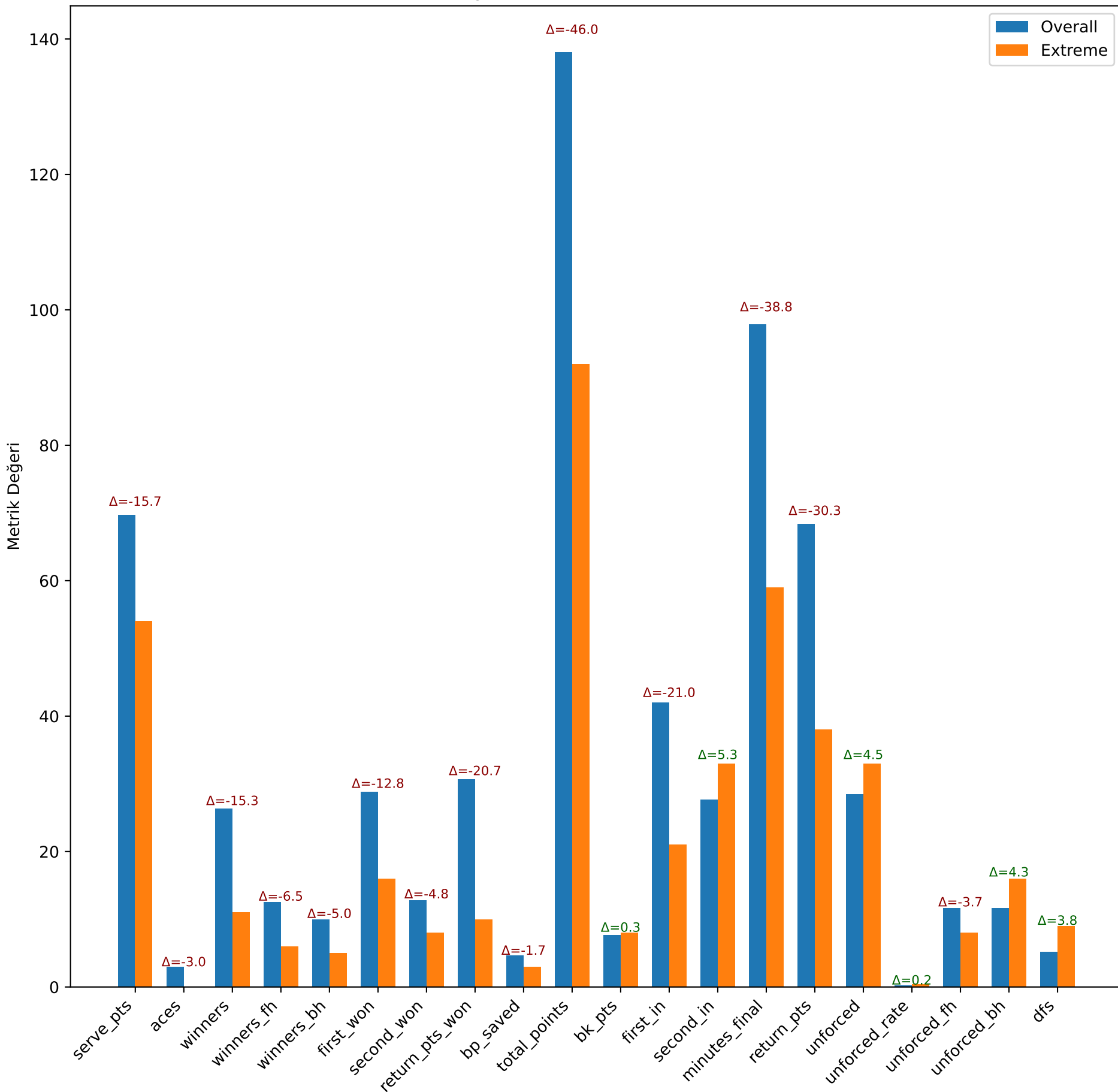
Elina Svitolina: Extreme vs Overall Performans



# Kiki Bertens: Extreme vs Overall Performans



Marta Kostyuk: Extreme vs Overall Performans



Serena Williams: Extreme vs Overall Performans

