Table for the comparision for model performance on the original and the conterfactual testing set for each group. "Or\_" represents original testing set results, "CF\_" represents counterfactual testing set results, "F" for female, "M" for male, "Diff" for the difference between two groups. AUC SP FPR F1 Or\_F 0.6606 0.7451 0.5215 0.6443 0.7227 0.6118 CF F 0.6992 0.7974 0.5376 0.6707 0.7508 0.6299 0.0161 Diff 0.0386 0.0523 0.0264 0.0281 0.0181 Prompt1 Or M 0.6446 0.7978 0.4762 0.6673 0.7152 0.6608 CF\_M 0.6144 0.7726 0.4405 0.6711 0.7110 0.6660 0.0357 0.0052 Diff 0.0302 0.0252 0.0038 0.0042 0.7418 Or F 0.6504 0.5000 0.6504 0.7252 0.6209 CF\_F 0.6911 0.7908 0.5269 0.6707 0.7492 0.6320 Diff 0.0407 0.0490 0.0269 0.0203 0.0240 0.0111 Prompt2 Or M 0.6163 0.7690 0.4484 0.6654 0.7065 0.6603 CF\_M 0.6011 0.7726 0.4127 0.6843 0.7193 0.6799 Diff 0.0152 0.0036 0.0357 0.0189 0.0128 0.0196 Or F 0.7988 0.8627 0.6935 0.6524 0.7553 0.5846 CF F 0.8455 0.9085 0.7419 0.6626 0.7700 0.5832 Diff 0.0467 0.0458 0.0484 0.0102 0.0147 0.0014 Prompt3 Or\_M 0.7996 0.8953 0.6944 0.6144 0.7086 0.6004 CF\_M 0.7618 0.8664 0.6468 0.6219 0.7059 0.6098 Diff 0.0378 0.0289 0.0476 0.0075 0.0027 0.0094 Or F 0.6728 0.7680 0.5161 0.6606 0.7378 0.6259 CF F 0.7297 0.8300 0.5645 0.6809 0.7639 0.6328 Diff 0.0569 0.0203 0.0261 0.0069 0.0620 0.0484 Prompt4 Or M 0.6541 0.8087 0.4841 0.6692 0.7191 0.6623 CF M 0.6125 0.7906 0.4167 0.6919 0.7288 0.6870 Diff 0.0416 0.0097 0.0247 0.0181 0.0674 0.0227 Or\_F 0.5752 0.6471 0.4570 0.6077 0.6723 0.5950 CF F 0.6179 0.7026 0.4785 0.6341 0.7049 0.6121 Diff 0.0427 0.0555 0.0215 0.0264 0.0326 0.0171 Prompt5 Or\_M 0.6011 0.7437 0.4444 0.6541 0.6924 0.6496 0.5595 0.7040 0.4008 0.6541 0.6806 0.6516 CF\_M CF Diff 0.0416 0.0397 0.0436 0.0000 0.0118 0.0020 0.6765 Or F 0.5874 0.4409 0.6321 0.6958 0.6178 0.7363 CF\_F 0.6809 0.7712 0.5323 0.6565 0.6195 Diff 0.0935 0.0947 0.0914 0.0244 0.0405 0.0017 Prompt6 Or M 0.6673 0.8051 0.5159 0.6522 0.7079 0.6446 CF\_M 0.5917 0.7292 0.4405 0.6484 0.6847 0.6444 Diff 0.0756 0.0759 0.0754 0.0038 0.0232 0.0002 0.3978 Or\_F 0.5427 0.6307 0.6199 0.6736 0.6164 CF F 0.6199 0.6961 0.4946 0.6240 0.6972 0.6007 Diff 0.0772 0.0654 0.0968 0.0041 0.0236 0.0157 Prompt7 Or M 0.6163 0.7509 0.4683 0.6465 0.6899 0.6413 CF\_M 0.5350 0.6408 0.6607 0.6395 0.6679 0.3889 Diff 0.0813 0.0830 0.0794 0.0057 0.0292 0.0018 Or F 0.5102 0.5980 0.3656 0.6118 0.6571 0.6162 CF F 0.5000 0.5980 0.3387 0.6220 0.6630 0.6297

Diff

Or M

CF\_M

Diff

Or F

CF\_F

Or\_M

CF M

Diff

Or\_F

CF F

Or\_M CF\_M

Diff

Diff

Prompt8

LR

MLP

0.0102

0.4650

0.4934

0.0284

0.8211

0.6159

0.2052

0.4858

0.6994

0.2136

0.6199

0.5508

0.0691

0.4405

0.5539

0.1134

0.0000

0.6317

0.6426

0.0109

0.8889

0.7353

0.1536

0.6426

0.8303

0.1877

0.7092

0.6634

0.0458

0.5451

0.6715

0.1264

0.0269

0.2817

0.3294

0.0477

0.7097

0.4194

0.2903

0.3135

0.5556

0.2421

0.4631

0.3656

0.0975

0.3254

0.4246

0.0992

0.0102

0.6730

0.6560

0.0170

0.6626

0.6768

0.0142

0.6635

0.6465

0.0170

0.6402

0.6524

0.0122

0.6068

0.6257

0.0189

0.0059

0.6692

0.6617

0.0075

0.7662

0.7389

0.0273

0.6667

0.7110

0.0443

0.7103

0.7036

0.0067

0.5922

0.6526

0.0604

0.0135

0.6750

0.6566

0.0184

0.5896

0.6580

0.0684

0.6646

0.6374

0.0272

0.6180

0.6489

0.0309

0.6099

0.6234 0.0135