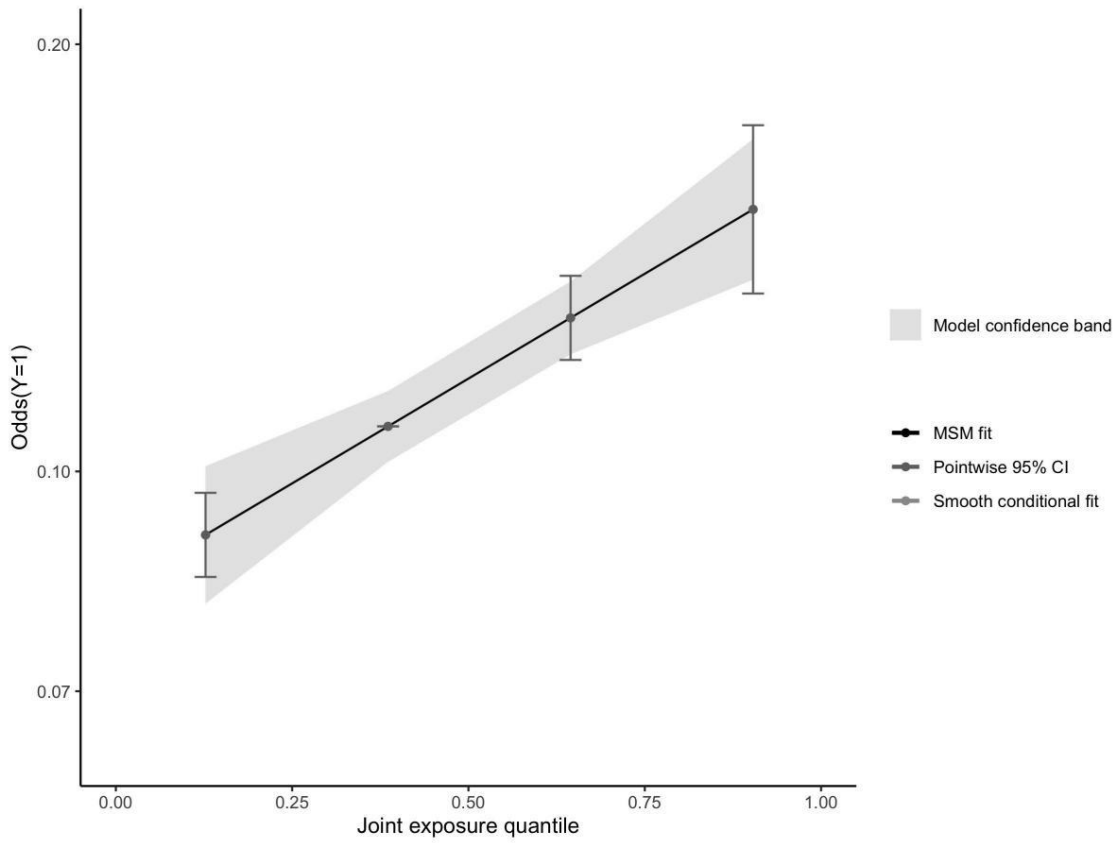
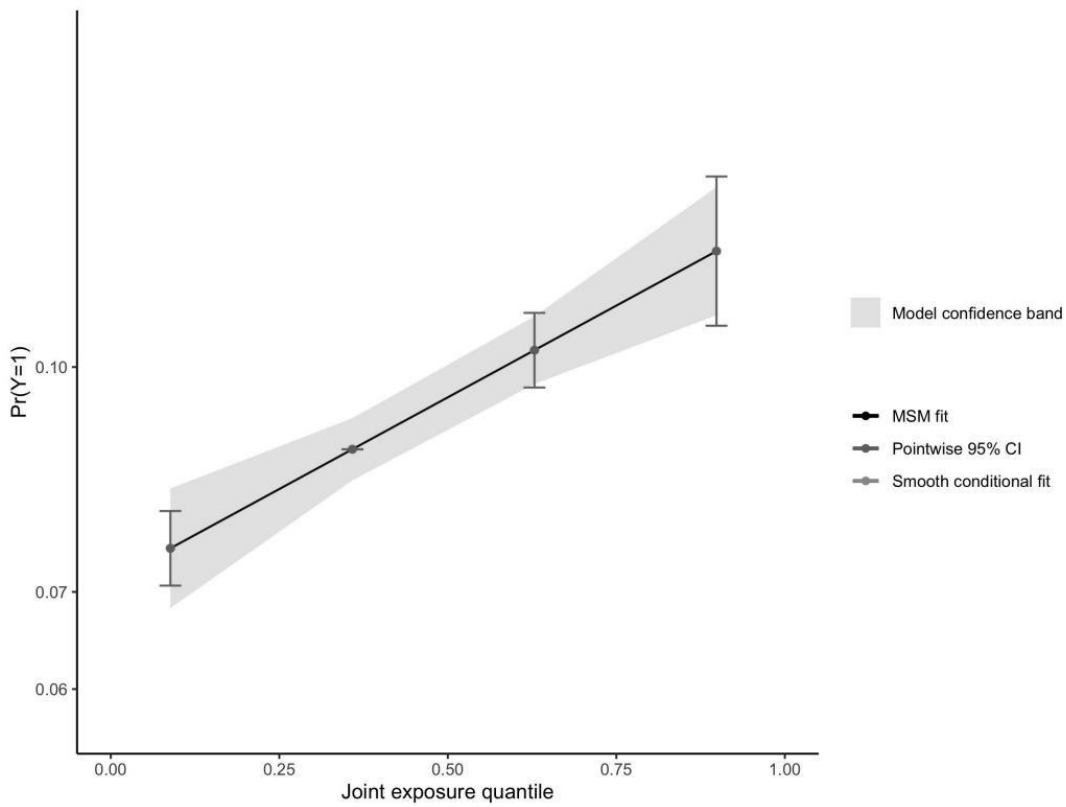


Supplementary Figure S1. Kernel function density plot of chemical measurements



Supplementary Figure S2. Confidence bands for prevalence OR values of PFAS and diabetes



Supplementary Figure S3. Confidence bands of prevalence Pr values for PFAS and diabetes

Supplementary Table SI. Association of individual PFAS with diabetes, Model I

| Chemical | Ln-transform | | Quartile 1 | Quartile 2 | | Quartile 3 | | Quartile 4 | |
|----------|-------------------|-----------------|------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | OR (95% CI) | <i>P</i> -value | | OR (95% CI) | <i>P</i> -value | OR (95% CI) | <i>P</i> -value | OR (95% CI) | <i>P</i> -value |
| MPAH | 0.66 (0.51, 0.85) | 0.002 | ref | 0.85 (0.79, 0.91) | 0.000 | 0.89 (0.84, 0.94) | 0.000 | 0.76 (0.67, 0.85) | 0.000 |
| PFDeA | 0.71 (0.54, 0.92) | 0.011 | ref | 0.87 (0.81, 0.94) | 0.000 | 0.91 (0.86, 0.96) | 0.000 | 0.89 (0.79, 1.00) | 0.047 |
| PFHxS | 0.68 (0.6, 0.77) | 0.000 | ref | 0.78 (0.73, 0.85) | 0.000 | 0.83 (0.78, 0.88) | 0.000 | 0.71 (0.63, 0.8) | 0.000 |
| PFNA | 0.79 (0.67, 0.93) | 0.004 | ref | 0.91 (0.85, 0.98) | 0.014 | 0.93 (0.88, 0.98) | 0.005 | 0.85 (0.76, 0.96) | 0.007 |
| PFUA | 0.65 (0.47, 0.89) | 0.007 | ref | 0.83 (0.77, 0.89) | 0.000 | 0.88 (0.84, 0.93) | 0.000 | 0.83 (0.74, 0.94) | 0.002 |

Supplementary Table SII. Association of individual PFAS with diabetes, Model II

| Chemical | Ln-transform | | Quartile 1 | Quartile 2 | | Quartile 3 | | Quartile 4 | |
|----------|-------------------|-----------------|------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | OR (95% CI) | <i>P</i> -value | | OR (95% CI) | <i>P</i> -value | OR (95% CI) | <i>P</i> -value | OR (95% CI) | <i>P</i> -value |
| MPAH | 0.71 (0.55, 0.91) | 0.008 | ref | 0.86 (0.8, 0.93) | 0.000 | 0.90 (0.85, 0.95) | 0.000 | 0.79 (0.7, 0.89) | 0.000 |
| PFDeA | 0.82 (0.63, 1.06) | 0.122 | ref | 0.93 (0.86, 1) | 0.057 | 0.95 (0.9, 1) | 0.074 | 0.98 (0.87, 1.1) | 0.714 |
| PFHxS | 0.75 (0.66, 0.86) | 0.000 | ref | 0.83 (0.77, 0.9) | 0.000 | 0.87 (0.82, 0.92) | 0.000 | 0.78 (0.68, 0.88) | 0.000 |
| PFNA | 0.84 (0.71, 0.99) | 0.035 | ref | 0.95 (0.88, 1.03) | 0.199 | 0.95 (0.9, 1.01) | 0.101 | 0.91 (0.8, 1.02) | 0.118 |
| PFUA | 0.79 (0.59, 1.06) | 0.123 | ref | 0.89 (0.83, 0.96) | 0.003 | 0.94 (0.89, 1) | 0.038 | 0.95 (0.84, 1.07) | 0.391 |

Supplementary Table SIII. Association of individual PFAS with diabetes, Model III

| Chemical | Ln-transform | | Quartile 1 | Quartile 2 | | Quartile 3 | | Quartile 4 | |
|----------|-------------------|-----------------|------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | OR (95% CI) | <i>P</i> -value | | OR (95% CI) | <i>P</i> -value | OR (95% CI) | <i>P</i> -value | OR (95% CI) | <i>P</i> -value |
| MPAH | 0.92 (0.71, 1.19) | 0.528 | ref | 0.98 (0.89, 1.07) | 0.653 | 0.97 (0.91, 1.03) | 0.320 | 0.94 (0.81, 1.08) | 0.395 |
| PFDeA | 0.92 (0.71, 1.18) | 0.499 | ref | 0.99 (0.92, 1.07) | 0.810 | 0.99 (0.94, 1.06) | 0.934 | 1.08 (0.95, 1.22) | 0.257 |
| PFHxS | 0.79 (0.7, 0.9) | 0.000 | ref | 0.86 (0.79, 0.93) | 0.000 | 0.89 (0.84, 0.95) | 0.000 | 0.81 (0.72, 0.92) | 0.201 |
| PFNA | 0.96 (0.82, 1.13) | 0.646 | ref | 1.02 (0.94, 1.11) | 0.574 | 1.01 (0.95, 1.07) | 0.792 | 1.01 (0.89, 1.15) | 0.821 |
| PFUA | 0.92 (0.69, 1.21) | 0.537 | ref | 1.02 (0.93, 1.11) | 0.734 | 1.00 (0.95, 1.06) | 0.965 | 1.07 (0.94, 1.22) | 0.285 |

Supplementary Table SIV. Association of WQS positive mixture coefficients of PFAS with diabetes

| Model | Estimate | Std. Error | z | P (> z) |
|--------------|-----------------|-------------------|----------|--------------------|
| Not adjusted | 1.02 | 0.04 | 0.46 | 0.643 |
| Model 1 | 1.77 | 0.04 | -5.79 | 0.000 |
| Model 2 | 1.83 | 0.04 | -4.18 | 0.000 |
| Model 3 | 1.83 | 0.04 | -4.11 | 0.000 |

Supplementary Table SV. Association of WQS negative mixture coefficients for PFAS with diabetes

| Model | Estimate | Std. Error | z | P (> z) |
|--------------|-----------------|-------------------|----------|--------------------|
| Not adjusted | 1.99 | 0.04 | -0.34 | 0.737 |
| Model 1 | 1.87 | 0.04 | -3.70 | 0.000 |
| Model 2 | 1.91 | 0.05 | -2.07 | 0.000 |
| Model 3 | 1.90 | 0.05 | -2.13 | 0.000 |

Supplementary Table SVI. Different models of PFAS quantile g-computation OR for mixture effects

| | Coefficients. | Coefficients. | Coefficients.L | Coefficients.U | Coefficients. | Coefficients. |
|---------|----------------------|----------------------|-----------------------|-----------------------|----------------------|----------------------|
| | Estimate | Std. Error | ower.CI | pper.CI | Z. value | Pr. z |
| Model 1 | 1.78 | 0.04 | 1.72 | 1.84 | -6.70 | 2.04E-11 |