

Development of the Postoperative Adjusted Percentile Tool (PAPT) for weight evolution assessment after gastric bypass

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AEC – SECO Percentiles Task Force

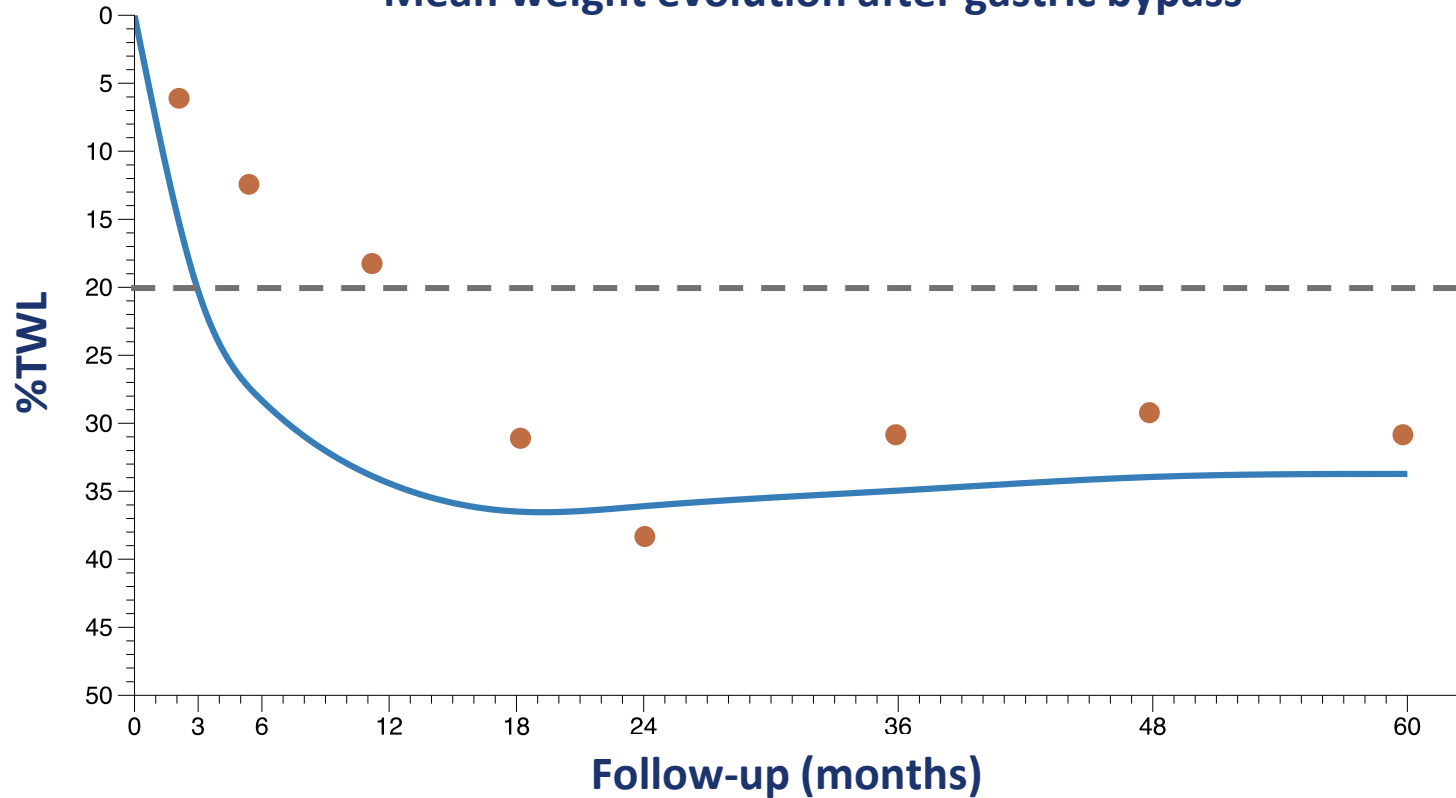
CONFLICT OF INTEREST DISCLOSURE

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“But... how am I doing?”

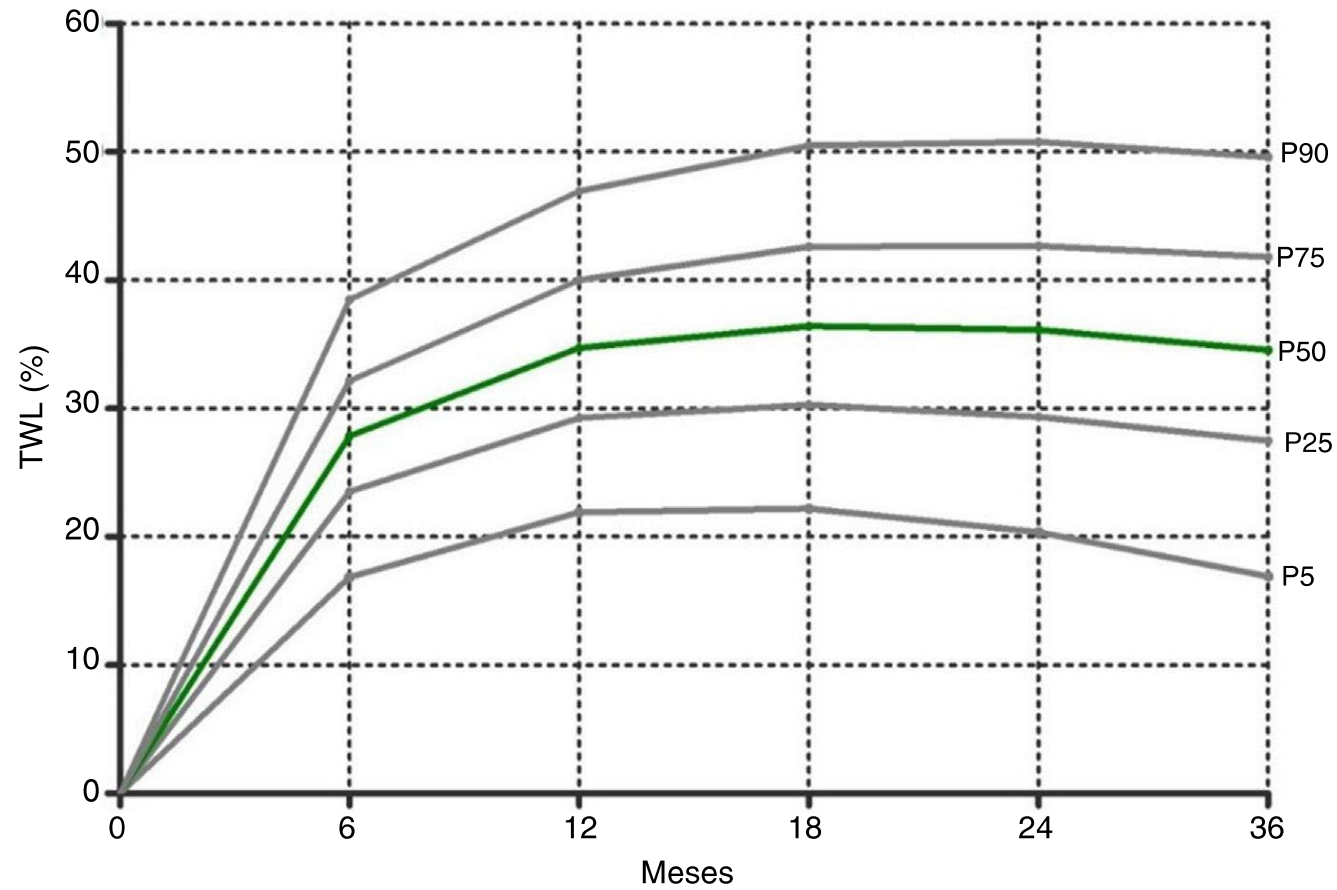
Mean weight evolution after gastric bypass



- Non-linear weight evolution
- Unintuitive outcomes
- Unadapted objectives:
 - Age
 - Sex
 - Preoperative T2D
 - Initial BMI

Salminen, Obes Surg 2024 / Chang, SOARD 2019 / Park, JOMES 2023

BACKGROUND



Van de Laar, SOARD 2019 / Sabench, Cir Esp 2019 / Tan, Obes Surg 2021

To develop a digital tool that provides charts of %TWL over time, expressed as percentiles and adjusted by the key baseline factors that modify weight trajectories after a gastric bypass

INCLUSION CRITERIA

- ▶ Laparoscopic gastric bypass
- ▶ Primary surgery
- ▶ Age: 18 - 65 years
- ▶ Initial BMI: 35 - 80 kg/m²

EXCLUSION CRITERIA

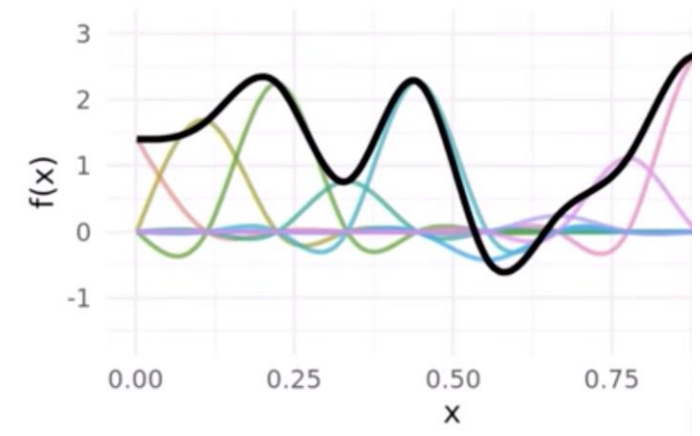
- ▶ Use of GLP-1 agonists
- ▶ Complications
- ▶ Non-standard trajectory

COLLECTED DATA

- ▶ Age
- ▶ Sex
- ▶ Preoperative T2D
- ▶ Height
- ▶ Initial weight
- ▶ Postoperative weight at 3, 6, 12, 28, 24, 36, 48 and 60 months

MODEL DEVELOPMENT

- ▶ SPSS / R Studio
- ▶ Generalized Additive Model for Location, Scale and Shape (GAMLSS)



RESULTS

- Retrospective (1998-2023) multicentric (n=18) database
- 4060 patients / \approx 17000 data points
- Mean age: 44 (\pm 10) yo / Sex: 76% female / Preop T2D: 71% / Mean initial BMI: 46 (\pm 6) kg/m²
- Follow-up: 42%, 79%, 82%, 58%, 67%, 56%, 17%, and 25% at 3, 6, 12, 18, 24, 36, 48, and 60 months, respectively

AEC



Test Set (20%)	1 year	2 years	5 years
%TWL	-0.46% (\pm 7,5)	-0.33% (\pm 8)	-0.46% (\pm 8.3)
BMI (kg/m ²)	-0.29 (\pm 3,5)	-0.20 (\pm 3,7)	-0.23 (\pm 3.9)

MAD: 0.082

RMSPE: 12.94%

RESULTS

BAP About BAP

Baseline data

Age (years):

30

Sex:

Male

Height:

175

cm
 ft

Preoperative type 2 diabetes mellitus:

Yes

Preoperative Weight:

200

kg
 lb

Type of bariatric surgery:

Bypass

Follow-Up

Postoperative time (months):

12

Postoperative weight:

120

kg
 lb

Postoperative time (months):

24

Postoperative weight:

90

kg
 lb

Postoperative time (months):

32

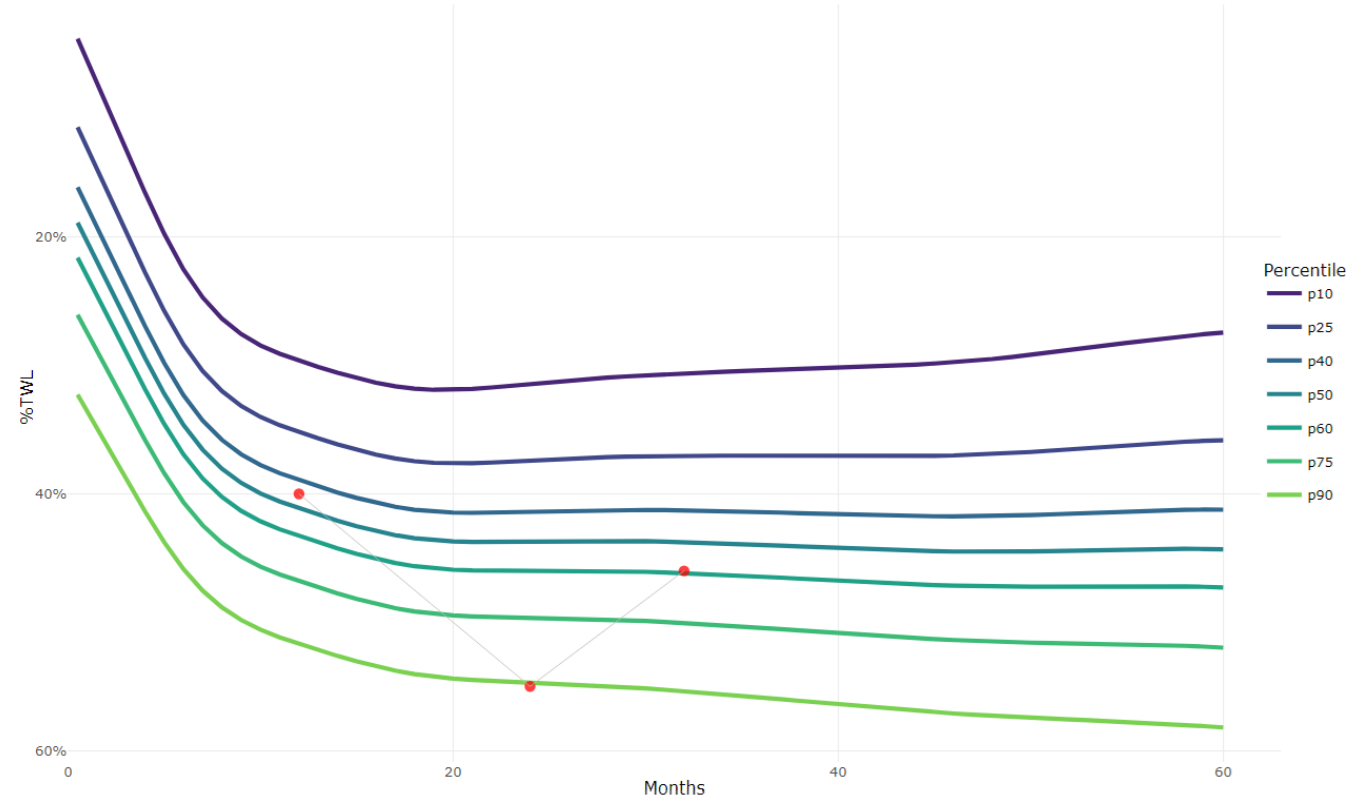
Postoperative weight:

108

kg
 lb

+ Add Follow-up Point

Submit



Months	Weight	Weight Loss	BMI	%TWL	Percentile
12	120 kg	80 kg	39.18	40.00	44.84
24	90 kg	110 kg	29.39	55.00	90.67
32	108 kg	92 kg	35.27	46.00	59.27

MARY

- Woman, 25yo
 - No T2D
 - BMI_{preop}: 50
 - BMI_{15m}: 35
 - %TWL ≈ 30%
- } Better outcomes expected

JOHN

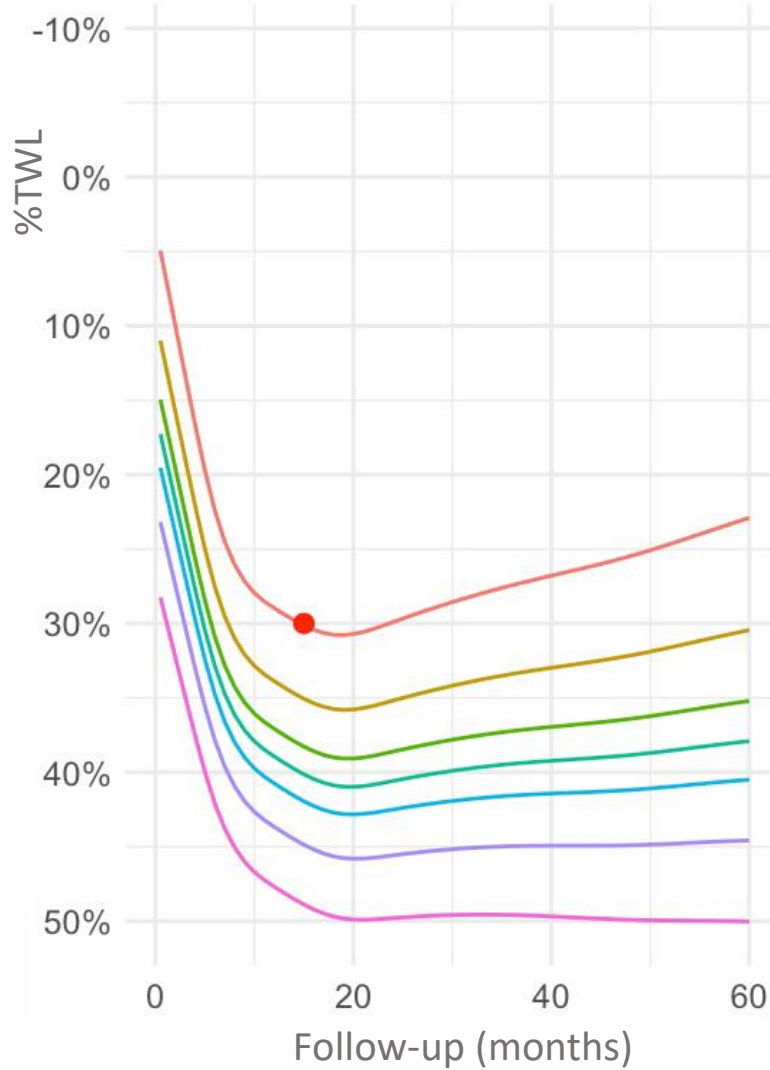
- Man, 50yo
 - T2D
 - BMI_{preop}: 35
 - BMI_{15m}: 25
 - %TWL ≈ 30%
- } Worse outcomes expected

DISCUSSION

MARY

- Woman, 25yo
- No T2D
- BMI_{preop}: 50
- BMI_{15m}: 35
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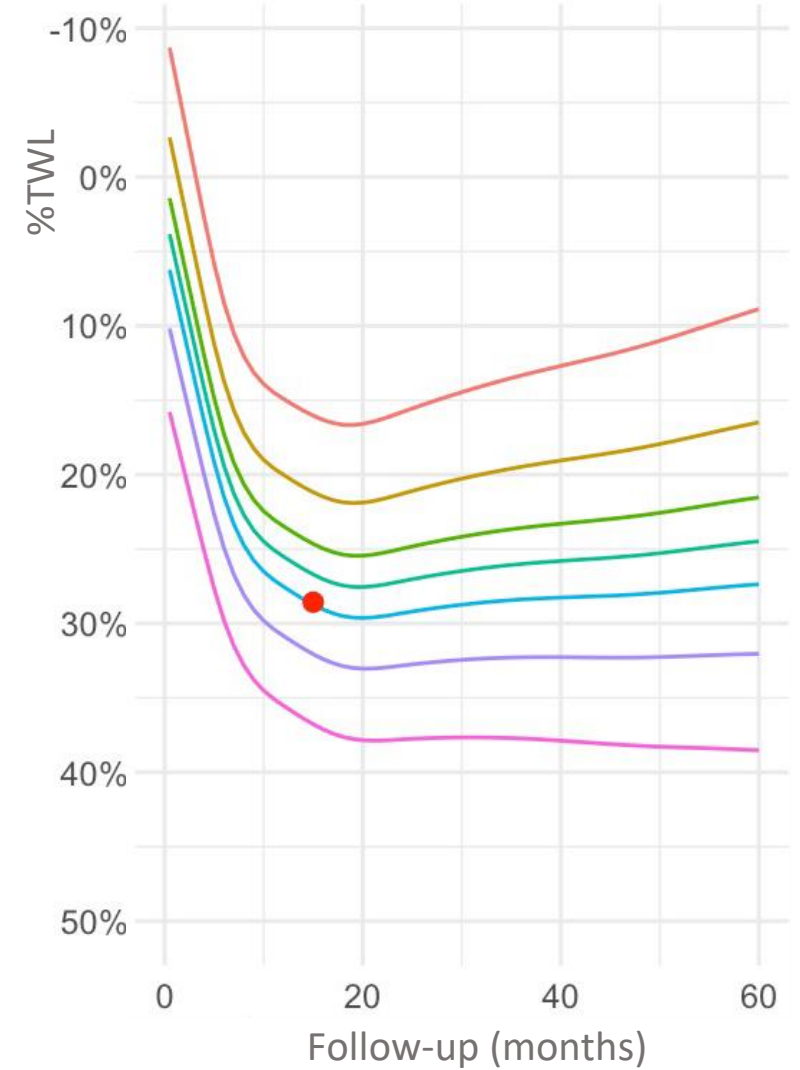
Adjusted
Percentile:
10th



JOHN

- Man, 50yo
- T2D
- BMI_{preop}: 35
- BMI_{15m}: 25
- %TWL ≈ 30%

Adjusted
Percentile:
60th



CONCLUSIONS

- ▶ This percentiles-based tool is an innovative digital resource that offers a personalized, straightforward, and visually engaging way to monitor weight evolution after a gastric bypass.
- ▶ External validation is underway.

THANK YOU VERY MUCH!!

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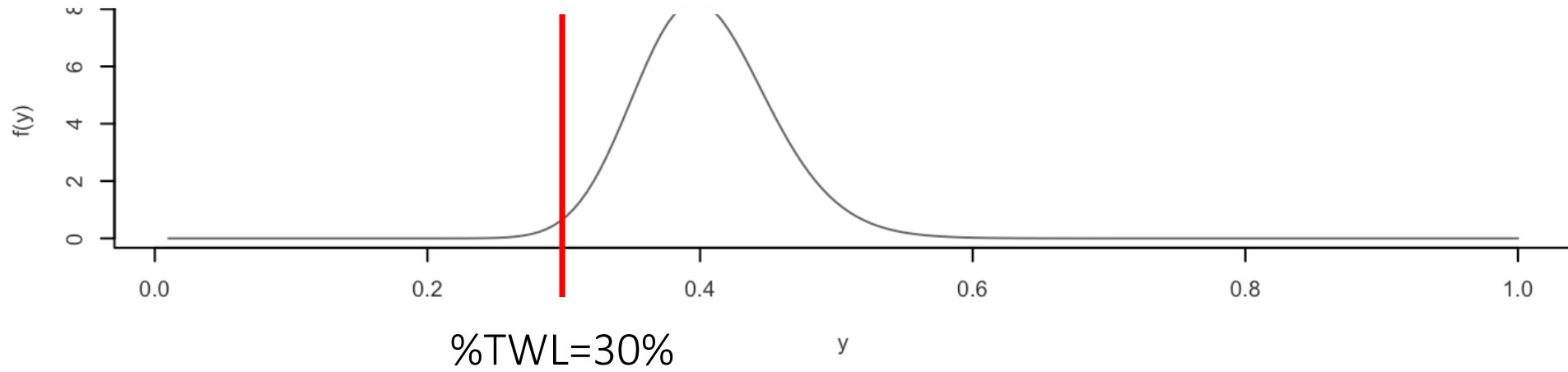
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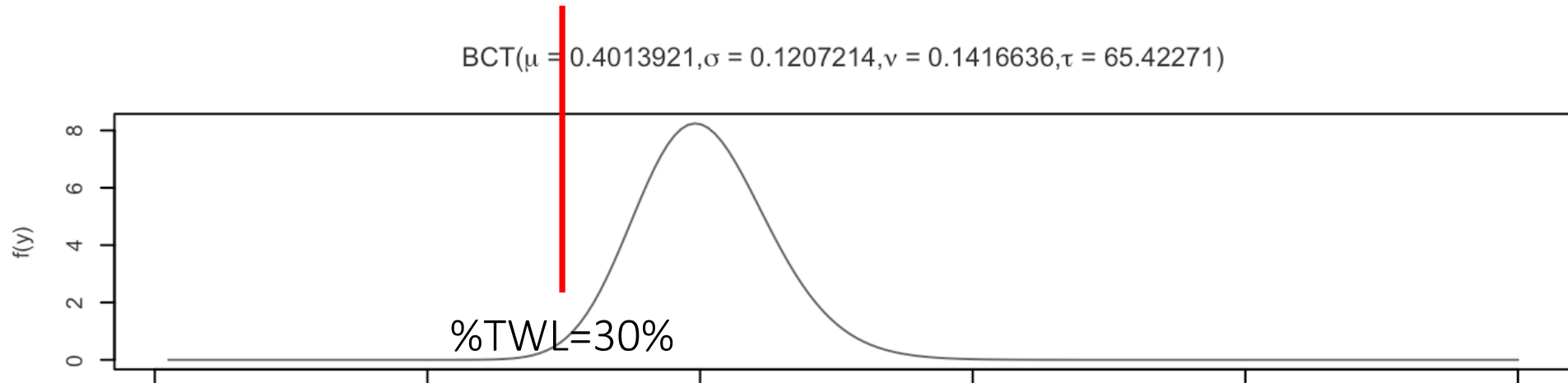
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DISCUSSION

MARY



JOHN



DISCUSSION

