

Evidence on the conceptual measurement model of the EQ VAS: a focused literature review.

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Objectives

- ❖ The EQ VAS is the only measure of overall health in the EQ family of instruments
- ❖ How EQ VAS become part of EQ-5D, which was initially developed to generate health status values, is intriguing

- ❖ It is unclear what exactly the EQ VAS measures and what its conceptual framework might be
- ❖ The objective of the study is to understand the origin and framework for the EQ VAS via a focused literature review

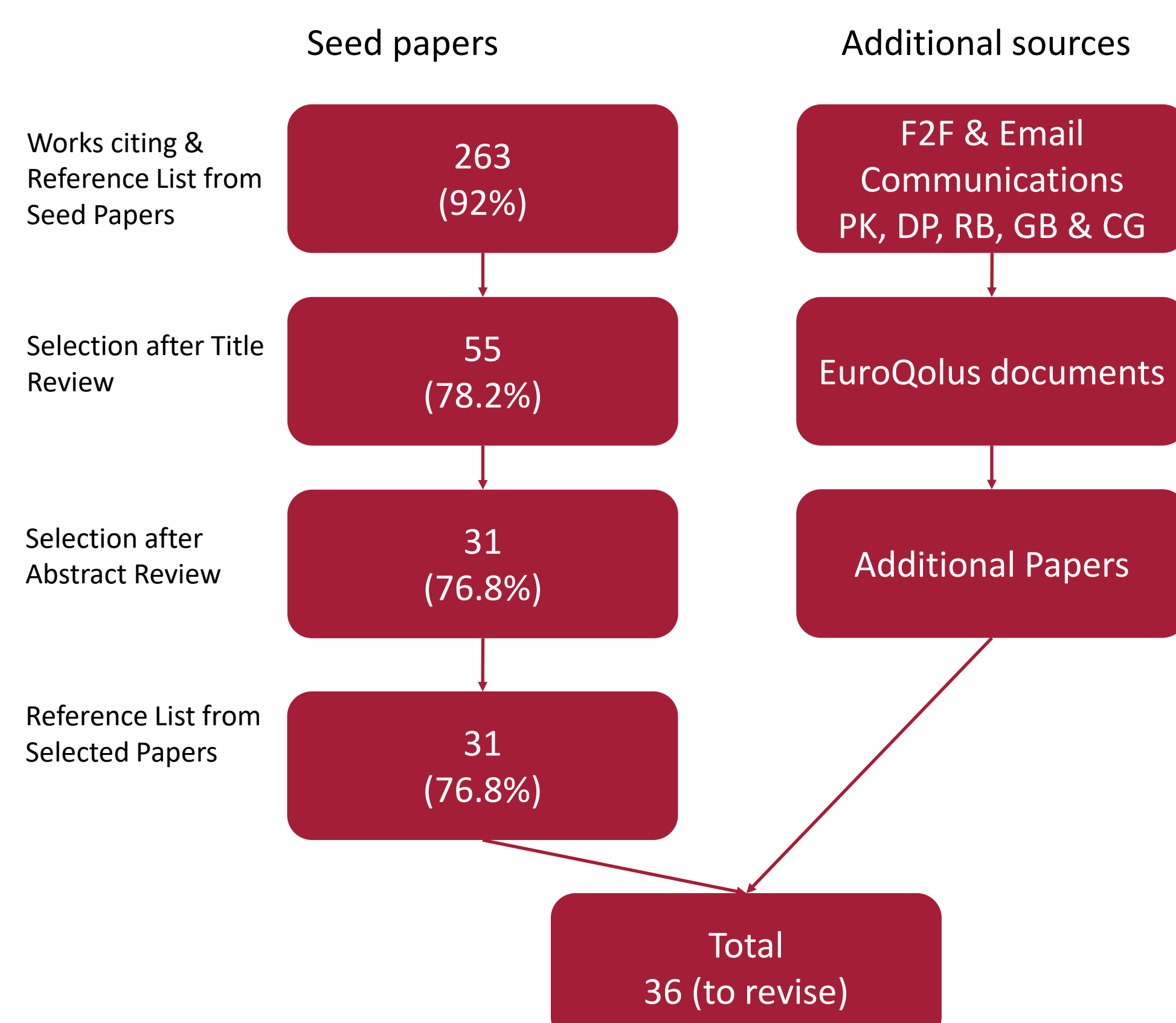


Methods

❖ Search

- ❖ Seed paper approach
 - ❖ 4 seed papers were selected by authors
 - ❖ Identify works that cited seed papers
 - ❖ Identify works in seed papers' reference lists
- ❖ Additional sources
 - ❖ Communication with experts (PK, DP, RB, GB & CG)
 - ❖ EuroQol documents (early EuroQol meetings 1987-1996)

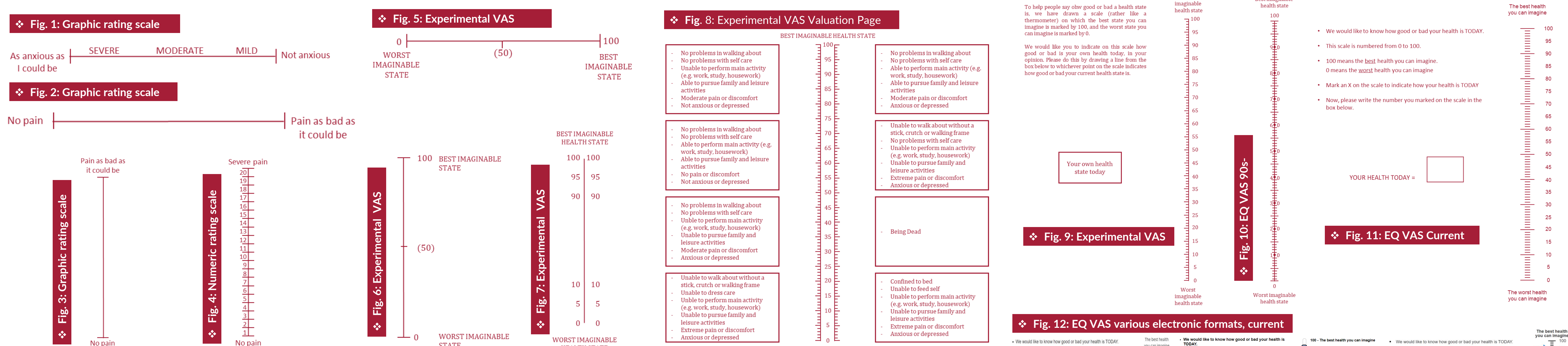
❖ Selection



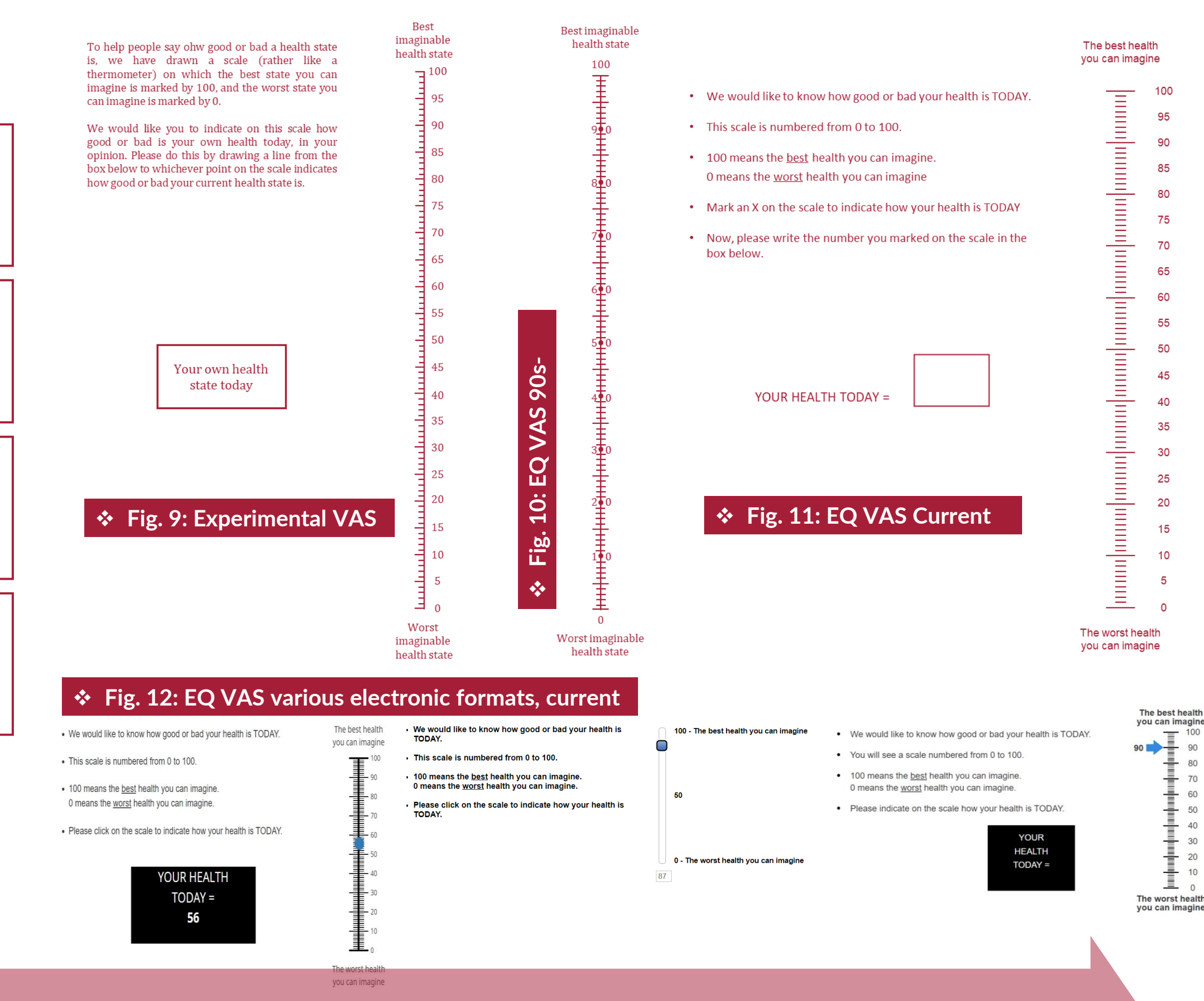
Results

- ❖ The EQ VAS was originally designed as a warm-up task for valuing hypothetical health states rather than an overall measure of one's own health status. (See below)
- ❖ The characters of the EQ VAS is reflecting the valuation origin, such as drawing a line, vertical line and end labels. Particularly, with its numerical indicator EQ VAS is closer to a numeric rating scale (Fig. 4)
- ❖ None of the design of the EQ VAS was aimed/tested for the purpose of measuring overall health (despite that it obviously works!)
- ❖ Dearth of literature for the conceptual framework of EQ VAS as a measure of self-rated overall health

- ❖ A systematic view of EQ VAS (Cheng 2021) indicated that overall construct validity was demonstrated across disease groups but less consistently in Asian populations. This could be due to the interpretation of EQ VAS
- ❖ A qualitative study (Tang 2021): differing interpretation of “the best imaginable health” and “the worst imaginable health”, offering some insight of what EQ VAS measured. The measure seems bipolar. EQ VAS was criticized for being “too granular”
- ❖ Another qualitative study (Ernstsson 2021) found difficulty of defining/imagining/relating to the two end-point labels. In comparison to best imaginable health, less attention was giving to worse imaginable health



VAS development in EuroQol



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○ Background

- ❖ Various VAS (i.e. rating scale, category rating) were explored in valuing health states since early 70s
- ❖ e.g. in 1973 Patrick, Bush and Chen, used a 16 categories rating scale with numbers 1 to 15
- ❖ Torrance in 1976 used a 100 millimeter “desirability line”, labeled “Death, Least Desirable” and “Healthy, Most Desirable”

○ 1987-1990 Begin

- ❖ VAS was proposed as a valuation tool in the group's early meeting, January 1988
- ❖ Various VAS formats were tested for valuation: e.g. horizontal vs vertical, 10/15 vs 20 cm, with vs without tick marks/numerical indicators (Fig. 5-9)
- ❖ By 1990 the VAS for EuroQol was formed – a single 20cm vertical line with numbers at 10 point interval (Fig. 10)

○ 1991 -1994 Establish

- ❖ Tests of VAS formats continued, no substantive change (Fig. 10)
- ❖ Pages 2 & 3 was a warm up task before valuation:
 - became independent questionnaire ≈1994 (later known as EQ-5D)
 - where VAS for own health today (page 3) is later called EQ VAS
- ❖ The MVH study was conducted and become an example for future valuation studies (3L)

○ 1995-2007 Proliferate

- ❖ VAS continued to be recommended by the group as a standardized valuation tool despite its limitations
 - TTO was preferred by researchers
- ❖ Biomed EQ-net project (1998-2001) was conducted to construct a common VAS value set.
- ❖ Experienced-based valuation, using EQ VAS values, was presented in 2007.

○ 2008 - now Decline?

- ❖ Paris protocol (2009), modified from the MVH protocol, was recommended for conducting 3L valuation.
- ❖ EQ VAS major update (2009)
 - no drawing line
 - write the number in a box
 - instruction improvement, (Fig. 11)
- ❖ VAS was not recommended for 5L valuation protocol (2011). VAS is no longer the recommend valuation tool for the group.

Discussion

❖ EQ VAS design

- ❖ The valuation origin of the EQ VAS explains its inherited characteristics
- ❖ Little is known whether such a design in measuring self-rated overall health is optimal
- ❖ A limited number of qualitative studies highlight the issues around the end-point labels:
 - difficulty to imagine/relate to, definitions varied by individuals
 - less attention giving to worse imaginable health
- ❖ Although there is only one (approved) version of electronic EQ VAS, different presentations of EQ VAS exist based on limitations of various electronic platforms

❖ EQ VAS score

- ❖ EQ VAS remotely resembles a typical VAS: literature on VAS foundation and psychometric property might not be directly applicable to EQ VAS?
- ❖ The EQ VAS, as all other VAS, is challenged whether the produced data is ordinal or cardinal.
 - Should parametric or non-parametric analysis should be employed to analyze VAS data?
- ❖ The ordering effect (EQ-5D profile before EQ VAS) might explain the less consistent performances in comparison to other single-item self-rated health measures

❖ EQ VAS framework

- ❖ The issues around end labels present the hurdle of understanding what EQ VAS measures and what its framework might be
- ❖ Other overall health measures with several decades of quantitative and qualitative, such as 5-category self-assessed health item, can offer valuable lessons for EQ VAS

❖ Future work

- ❖ In comparison to other research agenda in the EuroQol group, the attention/resources allocated to EQ VAS is insufficient
- ❖ Future research on the design and relevant issues of the conceptual framework and empirical function of EQ VAS are urgently warranted