Are visual threats prioritized without awareness? A critical review and meta analysis involving 3 behavioral paradigms and 2696 observers.

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Supplementary Material

Supplementary Material S1: Summary of other Excluded Paradigms.

Paradigm used to manipulate awareness.	Reasons for exclusion
Visual crowding (e.g. Koudier, Berthet & Faivre, 2011)	Research employing this technique has typically investigated semantic priming, rather than changes in perceptual selection in response to stimuli rendered invisible by crowding (e.g. Faivre, Berthet, & Koudier, 2012; Koudier, Berthet, & Faivre, 2011).
Motion induced blindness (MIB: e.g. Bonneh, Cooperman, & Sagi, 2001)	To our knowledge, no study has investigated changes in perceptual selection in response to threat stimuli rendered invisible by MIB. This is probably due to practical constraints such as the upper limit on the retinal size of stimuli (~1DVA) that can be rendered invisible by this method (see Bonneh, Cooperman, & Sagi, 2001, figure 2b).
Suppression by transcranial magnetic stimulation (TMS: e.g. Jacobs, de Graaf, Goebel, & Sack, 2012)	This research has primarily focused on subjective awareness during simple discrimination tasks (e.g. Corthout, Utti, Zieman, Cowey & Hallett, 1999; Jacobs, de Graaf, Goebel, & Sack, 2012). There have been some attempts to disrupt processing of emotional stimuli (faces/ bodily postures) by TMS, but these did not assess changes in perception induced by the suppressed stimuli (Filmer & Monsell, 2013; Jolij & Lamme, 2005).
Chromatic flicker fusion/ dichoptic colour masking (e.g. Jiang, Zhou & He, 2007)	We are not aware of any studies that have measured a threat-neutral processing difference to stimuli rendered invisible by chromatic flicker fusion. This may be due to practical constraints, such that stimuli have to be monochromatic, low-contrast and low spatial frequency (Schurger, Pereira, Treisman, & Cohen, 2010).
(single) Flash suppression (e.g. Wolfe, 1984).	We are aware of one study that has recorded behavioral responses to stimuli rendered invisible by flash suppression, but this did not allow a comparison between threatening and neutral stimuli (Krieman, Fried, & Koch, 2002).
Generalised flash suppression (GFS: e.g. Wilke, Logothetis, & Leopold, 2003)	We are not aware of any studies that have measured a threat-neutral processing difference to stimuli rendered invisible by GFS. This method may not be optimal for subliminal perception research given that invisibility depends on several seconds of prior adaptation to a visible target stimulus (Wilke, Logothetis, & Leopold, 2003).
Attentional blink (e.g. Maratos, 2011)	In the attentional blink paradigm, the behavioral performance measure is usually whether a first stimulus (T1) suppresses perception of a second stimulus (T2) (e.g. Maratos, 2011; Vermeulen, Godefroid, & Mermillod, 2009). Relatively few studies have investigated how stimuli rendered invisible by the attentional blink (T2) impact on subsequent perceptual selection. (Giesbrecht, Bischof, & Kingstone, 2004; Qian, Meng, Chen, & Zhou, 2012). At any rate, given the rapid serial visual presentation associated with this task, it would be difficult to ascertain whether changes in perceptual selection of stimuli presented after the T2 were actually induced by the (invisible) T2 itself or by the (visible) T1.
CFS with visual probe (e.g. Hedger, Adams, & Garner, 2015)	To our knowledge, only two studies have investigated attentional cuing effects in response to threatening stimuli rendered invisible by CFS (Hedger, Adams, & Garner, 2015; Tan, Ma, Gao, Wu, & Fang, 2011).
Load induced blindness (e.g. Macdonald & Lavie, 2008)	To our knowledge, no study has investigated changes in perceptual selection in response to threat stimuli rendered invisible by LIB.
Surprise induced blindness (Asplund, Todd, Snyder, Gilbert & Marois, 2010)	To our knowledge, no study has investigated changes in perceptual selection in response to threat stimuli rendered invisible by SIB.
Adaptation induced blindness (e.g. Motoyoshi & Hayakawa, 2010)	To our knowledge, no study has investigated changes in perceptual selection in response to threat stimuli rendered invisible by AIB.
Change blindness (CB: e.g. Simons & Rensinck, 2005)	To our knowledge, no study has investigated changes in perceptual selection in response to threat stimuli rendered invisible by CB.
Distractor induced blindness (DIB: e.g. Michael, Hesselmann, Kiefer, & Niedeggen, 2011)	To our knowledge, no study has investigated changes in perceptual selection in response to threat stimuli rendered invisible by DIB.

Supplementary Material S2: Search Terms and Omissions.

MVP paradigm.

PUBMED search terms:

((((((((((((((((((sub-threshold[Title/Abstract]) AND dot-probe[Title/Abstract])) OR ((subliminal*[Title/Abstract]) AND attentional bias[Title/Abstract])) OR ((awareness[Title/Abstract]) AND attentional orientation[Title/Abstract])) OR ((masking[Title/Abstract]) AND dot-probe[Title/Abstract])) OR ((attention-orienting[Title/Abstract]) AND masked[Title/Abstract])) OR ((probe detection[Title/Abstract]) AND masked[Title/Abstract])) OR ((pre-attentive[Title/Abstract]) AND visual probe[Title/Abstract])) OR ((probe detection[Title/Abstract]) AND preconscious*[Title/Abstract])) OR ((subliminal[Title/Abstract]) AND bias[Title/Abstract])) OR ((masked[Title/Abstract]) AND cueing[Title/Abstract])) OR ((subliminal[Title/Abstract]) AND attentional bias*[Title/Abstract])) OR ((preconscious[Title/Abstract]) AND attention[Title/Abstract])) OR ((unaware[Title/Abstract]) AND attentional bias[Title/Abstract])) OR ((nonconscious[Title/Abstract]) AND dot probe[Title/Abstract])) OR ((masked[Title/Abstract]) AND dot-probe[Title/Abstract])) OR ((masked[Title/Abstract]) AND dot probe[Title/Abstract])) OR ((visual probe[Title/Abstract]) AND masked[Title/Abstract]))

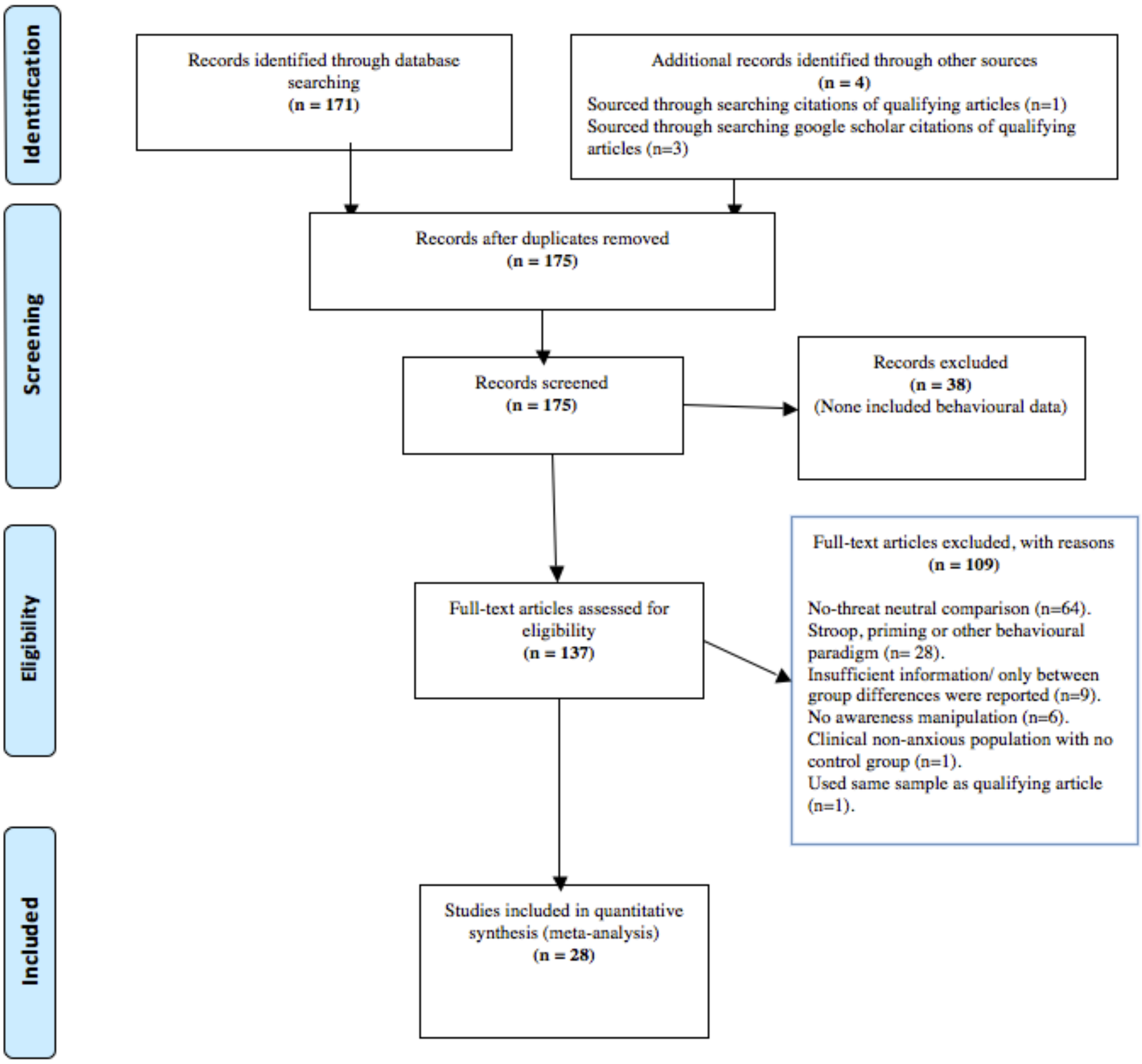

*Figure S1***.** PRISMA flow diagram for the MVP search. Note that this shows only the most important reasons for excluding a study (several studies were excluded for multiple reasons).

BR paradigm

PUBMED search terms:

((((((((binocular rivalry[Title/Abstract]) AND emotion*[Title/Abstract])) OR ((negative*[Title/Abstract]) AND binocular rivalry[Title/Abstract])) OR ((threat*[Title/Abstract]) AND binocular rivalry[Title/Abstract])) OR ((emotion*[Title/Abstract]) AND interocular suppression[Title/Abstract])) OR ((negative*[Title/Abstract]) AND interocular suppression*[Title/Abstract])) OR ((phobic*[Title/Abstract]) AND interocular suppression[Title/Abstract]))

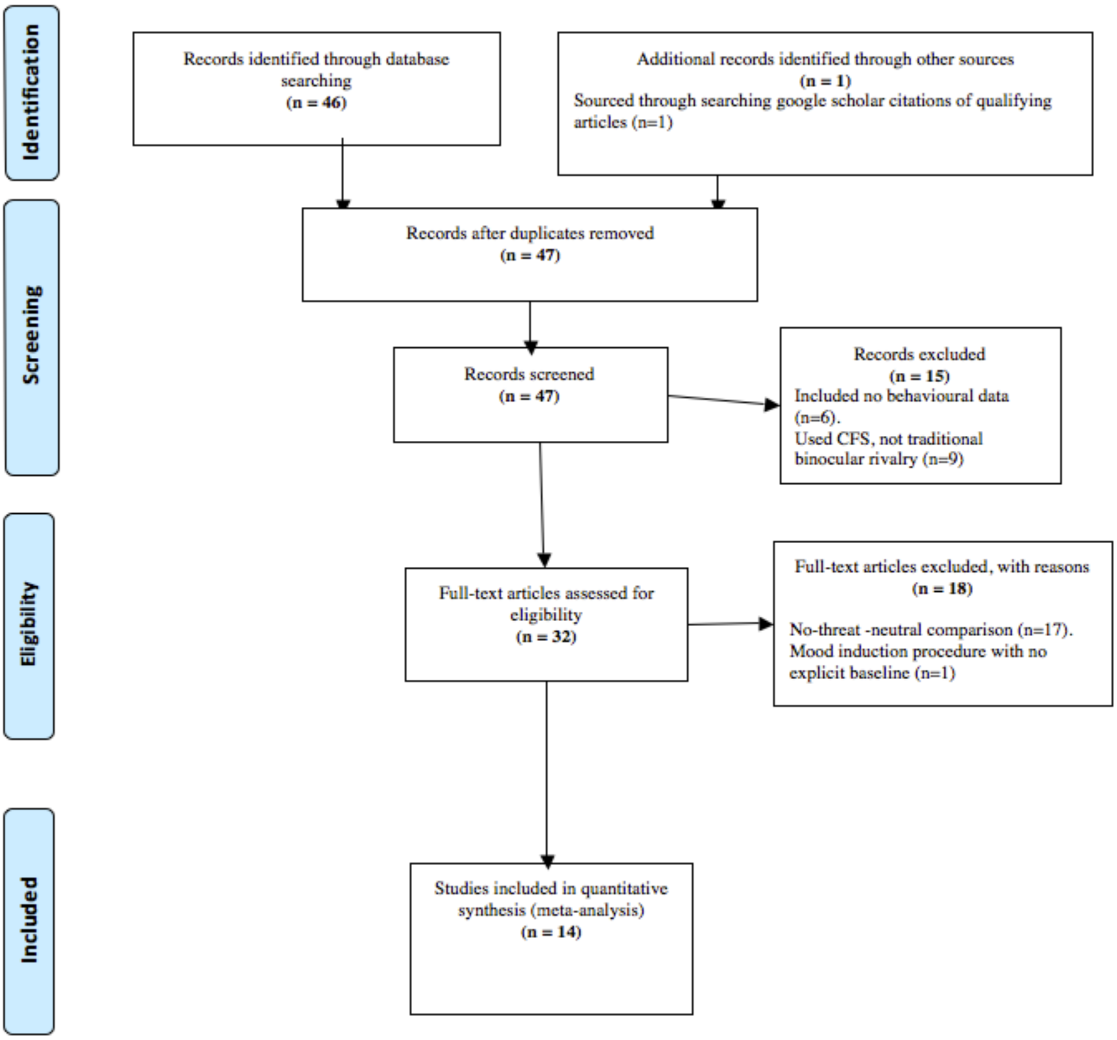

Figure S2. PRISMA flow diagram for the BR search.

bCFS paradigm

PUBMED search terms:

(((((((((continuous flash suppression[Title/Abstract]) AND emotion*[Title/Abstract])) OR ((negative*[Title/Abstract]) AND continuous flash suppression[Title/Abstract])) OR ((threat*[Title/Abstract]) AND continuous flash suppression[Title/Abstract])) OR ((emotion*[Title/Abstract]) AND interocular suppression[Title/Abstract])) OR ((negative*[Title/Abstract]) AND interocular suppression*[Title/Abstract])) OR ((phobic*[Title/Abstract]) AND interocular suppression[Title/Abstract])) OR ((dynamic noise*[Title/Abstract]) AND suppression[Title/Abstract]))OR ((dynamic mask*[Title/Abstract]) AND suppression[Title/Abstract]))))

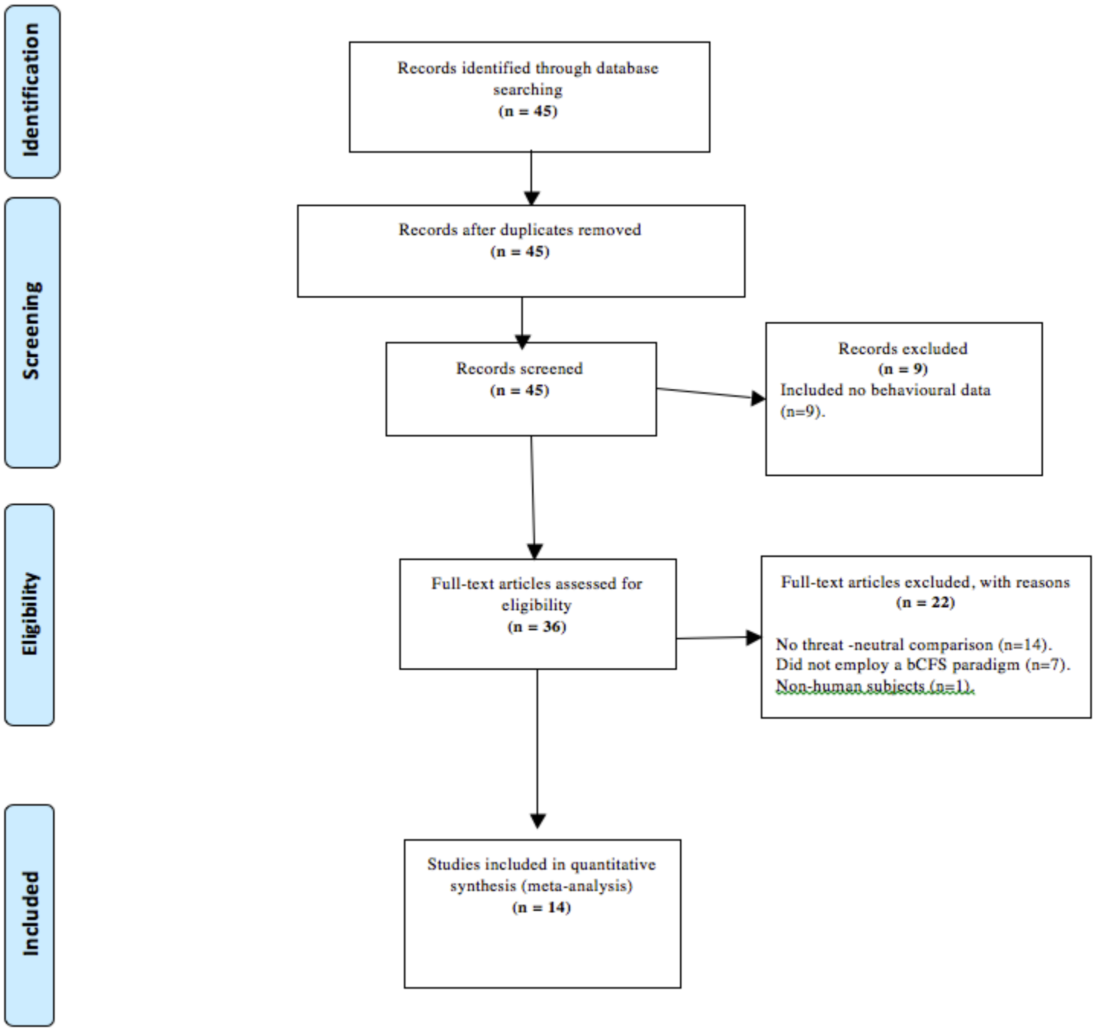

*Figure S3***.** PRISMA flow diagram for the bCFS search.

Supplementary Material S3: Decisions Regarding Standardizers for *d*

As Dunlap and Cortina (1996) note, d_z calculated from a repeated measures design may lead to inflated estimates (relative to an equivalent independent samples effect) as it does not correct for the pre-post correlation (r). In paired designs, if r is greater than .5, then effect sizes based on d_z will be inflated by a factor of $\sqrt{2(1-r)}$. We therefore also report the correlation-adjusted effect size (d_{RM}):

$$d_{RM} = \frac{t}{\sqrt{N}} \times \sqrt{2(1-r)}$$

There are several reasons why it is desirable to report d_{RM} as well as d_Z. Firstly we note that i) this issue may have been ignored in other meta-analyses; the methods used to compute *d* for the paired design are highly inconsistent (Lakens, 2013), ii) independent designs are often the 'default' in meta-analyses and so most existing 'benchmark' effect sizes are based on independent samples iii) the paired correlation gives useful information about the precision of the experimental design (Cumming, 2012). Thus, wherever possible, we report the available estimate of r for each paradigm.

As the paired correlation was never reported, we used the equations reported in Morris & Deshon (2002) to recover these statistics from the available means, standard deviations and paired t value. Further information on how to interpret d_z and d_{RM} can be found in Lakens (2013).

The MVP paradigm

The paired correlation could be estimated for 13 effects (M = .92, SD = .05). The high correlation entails a highly sensitive design and precise estimation of the effect size. Thus the correlation-adjusted pooled effect size for the MVP paradigm is 0.11.

The BR paradigm

We do not report the estimated correlation-adjusted effect size for the BR paradigm, as this is distorted by the nature of the task. For instance, in a trial where a threatening and neutral stimulus are engaged in rivalry, perceiving one of the rivalling stimuli for more time will generally entail seeing the other for less time. A negative correlation therefore reflects the nature of the task, rather than a lack of sensitivity in the paired design. In this context, we do not believe a conversion from d_z to d_{RM} makes conceptual sense.

The bCFS paradigm

The paired correlation could be estimated for 19 effects (*M* = .94, *SD* = .03). The high correlation entails a highly sensitive design. Thus the correlation-adjusted pooled effect size for the MVP paradigm is -0.05.

Supplementary material S4: Decisions regarding missing information

In cases where no relevant statistics were reported, we were sometimes able to calculate d_z by estimating the mean and standard deviation of difference scores from published figures, using GraphClick software (Version 3.0; Arizona Software). If a paper contained no information to compute an effect size, we contacted the corresponding author to obtain the necessary data. If this was unsuccessful, we adopted two conservative approaches to estimate the effect, as summary effects calculated from meta-analyses are often modestly inflated (Button et al., 2013): i) Where an effect was reported to be non-significant, but no exact statistics were reported, we estimated the effect size assuming that $p = .50$ to obtain a representative sample of outcomes (Cooper & Hedges, 1994). ii) In cases where no exact *p* value was reported, but the paper reported that an effect was significant (e.g. "$p < .050$"), we assumed the upper bound (e.g. $p = .050$) to provide a conservative estimate of the effect size. These two procedures were only used when it was possible to determine the direction of an effect (from condition means/figures) and in practice accounted for just 21% of the included effects. If insufficient information was available to use the above methods to estimate an effect size, the effect was excluded from the analysis.

Supplementary material S5: Methods for imputing missing moderator values

To estimate unreported values of continuous moderators, we used two multiple imputation methods (Van Buuren & Groothuis-Oudshoorn, 2011). With *"regression imputation"* we performed regression on a bootstrapped sample of observed data. From the resulting regression coefficients, we imputed values for the unreported data via predictive mean matching (van Buuren, 2012). These imputed values were then combined with the observed data and a meta regression was performed on the full data set. We then repeated this process 1000 times and pooled across analyses. For *"random-sample imputation"* we simply imputed unreported data from random samples of the observed data 1000 times, combined this with the observed data and performed the analyses on all full, imputed datasets and pooled across analyses. Thus, the regression imputation is an ‘optimistic’ estimate, based on the assumption that the observed relationship is predictive of the missing values (taking into account the uncertainty in the data), whereas random sample imputation is conservative as it assumes that missing values are randomly distributed.

Supplementary Material S6: Explaining Sources of Heterogeneity

The pseudo R^2 statistic (López-López, Marín-Martínez, Sánchez-Meca,Van den Noortgate, & Viechtbauer, 2014) is computed as:

$$R^2 = \frac{\tau^2{}_{RE} - \tau^2{}_{ME}}{\tau^2{}_{RE}}$$

Where τ_{RE} is the total heterogeneity as estimated by the empty (no moderator) random effects model and τ_{ME} is the amount of residual heterogeneity as estimated by the mixed effects (moderator) model. The pseudo R^2 thus estimates the proportional reduction in heterogeneity after including moderators. Note that it does not involve sampling variability at all. Hence, it is possible to get very large R^2 values, even when there are still discrepancies between the regression line and the observed effect sizes (when those discrepancies are not much larger than what one would expect based on sampling variability alone). In fact, when $\hat{\tau}^2{}_{ME} = 0$, then R^2=1. However, this *does not* imply that the points all fall perfectly on the regression line - the residuals are just not larger than expected based on sampling variability. This statistic should thus be interpreted with caution, particularly for analyses with a small *k*.

Supplementary material S7: Summary of included effects: The MVP paradigm.

Demographic information.

The mean age of participants included in the MVP effects was 21.89 (range: 12 – 40). The gender ratio (females: males) was 1.45 (range: 0.55- 1.45). 24 effects were defined as being from undergraduate populations, 14 were defined as "consenting adults" (usually a mixture of university students and staff) 4 were child populations (all less than 14 years of age) and 2 had a clinical anxiety disorder. None of these demographic variables (age, gender ratio, population) were significant moderators of effect size.

Study/Effect	Method	Source	Notes
1) Mogg et al., 1994 (i)	*t & N*	p 856	Data is taken from the "no-stress condition" **(see 'other coding and inclusion decisions no 3 in the main text).**
Mogg et al., 1994 (ii)	*t & N*	p 856	As above
2) Mogg et al., 1995 (i)	*t & N*	p 26	
Mogg et al., 1995 (ii)	*t & N*	p 26	
3) Mogg & Bradley, 1999 (i)	*t & N*	p 722	
Mogg & Bradley, 1999 (ii)	*p=.5*	p 722	*p* value of .5 is assumed **(see section S4)**
Mogg & Bradley, 1999 (iii)	*t & N*	p 729	
Mogg & Bradley, 1999 (iv)	*t & N*	p 731	Experiment 2 was excluded, since it contains no explicit comparison between threat and neutral stimuli (happy and threatening faces were used)- **see 'inclusion criteria' no 3 in the main text**. We did not split into high and low anxiety groups here, since an effect size cannot be computed for each sample separately from the reported information.
4) Mogg & Bradley, 2002 (i)	*t & N*	p 1408	We split the data by social anxiety, rather than trait anxiety, since the analyses are more detailed for these groups.
Mogg & Bradley, 2002 (ii)	*t & N*	p 1408	
5) Fox, 2002 (i)	*t & N*	p 57	
Fox, 2002 (ii)	*t & N*	p 57	
Fox, 2002 (iii)	*p=.5*	p 57	*p* value of .5 is assumed, since the effect is indicated to be non-significant

			but no statistics were reported **(see section S4).**
Fox, 2002 (iv)	*p=.5*	p 57	As above
6) Keogh et al 2003 (i)	*Mdiff and SDdiff*	p 88	Mean differences and standard deviation of differences were computed from figures on page 88- using GraphClick software. The effect represents the pooled effect across all groups and word types.
7) Beaver et al., 2005 (i)	*t & N*	p 74	An effect size can be computed for the "high aversive" group only. This group could be considered the group for which the conditioning procedure was most effective. Only data from experiment 2 is included, since in experiment 1, the stimuli are not masked during the MVP trials.
8) Hunt et al., 2006 (i)	*Mdiff and SDdiff*	p 423	Mean differences and standard deviation of differences were computed from figures on page 423- using GraphClick software. The effect represents the pooled effect across all groups and word types.
9) Koster et al., 2007 (i)	*p=.5*	p 288	Interaction between cue validity and cue valence is non significant, so p value of 0.5 assumed (**see section S4-** direction of effect is inferred from table).
Koster et al., 2007 (ii)	*p=.5*	p 290	As above
Koster et al., 2007 (iii)	*p=.5*	p 291	As above. Experiment 1b does not use masking and so data were excluded.
10) Murphy et al., 2007 (i)	*p=.5*	p 508	Placebo group only. No exact *p* value reported so .5 assumed.
11) Stone & Valentine, 2007 (i)	*t & N*	Provided by author	
Stone & Valentine, 2007 (ii)	*t & N*	Provided by author	
12) Wirth & Schultheiss, 2007 (i)	*t & N*	Provided by author	
13) Schultheiss & Hale, 2007 (i)	*t & N*	Provided by author	
Schultheiss & Hale, 2007 (ii)	*t & N*	Provided by author	
14) Carlson & Reinke, 2008 (i)	*t & N*	p 524	Although many components of attention were analysed (orienting, disengagement), our effect reflects the RT difference between congruent and incongruent trials, in line with the comparison most commonly made in the other MVP studies.
Carlson & Reinke, 2008 (ii)	*t & N*	p 526	As above
15) Monk et al., 2008 (i)	*t & N*	Provided by author	
Monk et al., 2008 (ii)	*t & N*	Provided by author	
16) Carlson et al., 2009a (i)	*p & N*	p 1387	
Carlson et al., 2009a (ii)	*p & N*	p 1387	
17) Carlson et al., 2009b (i)	*F & N*	p 538	
18) Helzer et al., 2009 (i)	*p=.5*	p. 6	Effect reported to be non-significant with no exact stats so *p*=.5 assumed **(see section S4).**
19) Fox et al., 2010 (i)	*p*=.5	p 5	Effect reported to be non-significant with no exact stats so *p*=.5 assumed **(see section S4).** Direction of effect is inferred from table.
20) Carlson & Reinke, 2010 (i)	*F & N*	p 22	
21) Thomason et al.,2010 (i)	*p=.5*	p. 6	
Thomason et al.,2010 (ii)	*t & N*	p.6	Angry faces were included, but no stats are available for this comparison.
22) Sutton & Altarriba, 2011 (i)	*t & N*	p 743	Experiment 1 was excluded (it did not use a masking procedure).

23) Carlson et al., 2012 (i)	*p & N*	p 205	
Carlson et al., 2012 (ii)	*p & N*	p 205	
24) Carlson et al., 2013a (i)	*t & N*	p 4	
25) Carlson et al., 2013b (i)	*t & N*	p 2597	
26) Maoz et al., 2013 (i)	*t & N*	Provided by author	
Maoz et al., 2013 (ii)	*t & N*	Provided by author	
27) McCroy et al., 2013 (i)	*t & N*	p 5	Both groups analysed together
28) Carlson et al., 2014 (i)	*p & N*	p 5	

A document containing further details about each included effect (graphclick files, screenshots of the relevant sections of papers) can be obtained from the authors on request.

Supplementary Material S8: Main Effects and Interactions: The MVP paradigm

Table S3

Moderators of Threat-related Bias in the MVP Paradigm: Main Effects.

Moderator	*k*	*df*	Q^O	*p*	R^2
Stimulus type	44	5	21.12	.017*	24.34
SOA	44	1	9.23	.002**	29.10
Awareness measure	44	1	0.04	.835	0.00
Probe response	44	1	0.14	.708	0.00
Retinal size	22	1	0.24	.624	0.00
STAI-T	15	1	6.90	.008**	37.18
H^{pwr}	26	1	0.03	.858	0.00
Visual field	10	1	1.93	.165	11.99

^{O} Omnibus test for comparison between levels of a moderator

Plots of all main effects can be found at the following URLs:

http://figshare.com/articles/MVP_Main_effects_1/1466750

http://figshare.com/articles/MVP_Main_effects_2/1466751

Table S4

Moderators of Threat-related Bias in the MVP Paradigm: Two-way Interactions.

Moderators	*k*	Model matrix full?	*df*	Q^{I}	*p*	R^2
Stimulus type x SOA	44	No	3	1.44	.697	24.32
Stimulus x awareness measure	44	No	2	1.87	.391	19.88
Stimulus x probe response	44	No	3	3.23	.358	25.63
Stimulus x retinal size	22	No	2	1.30	.521	6.35
Stimulus x STAI-T	15	No	2	8.78	.012*	71.01
Stimulus x H^{pwr}	26	No	2	0.79	.673	0.00
SOA x awareness measure	44	Yes	1	3.73	.054[M]	30.86
SOA x probe response	44	Yes	1	0.04	.834	20.84
SOA x retinal size	22	Yes	1	1.54	.215	0.00
SOA x H^{pwr}	26	Yes	1	0.21	.646	0.00
Awareness measure x probe response	44	Yes	1	1.10	.295	0.00
Awareness measure x retinal size	22	Yes	1	1.44	.229	0.00
Probe response x retinal size	22	Yes	1	1.29	.254	0.00
Probe response x STAI-T	15	Yes	1	4.69	.030*	50.61
Retinal size x H^{pwr}	16	Yes	1	1.44	.230	0.00
STAI-T x retinal size	11	Yes	1	1.56	.211	65.49
STAI-T x H^{pwr}	14	Yes	1	2.43	.112	50.99

Note: If the model matrix is not full, this indicates that redundant predictors were removed (e.g. there were no STAI-T data for effects that used disgust faces- thus this coefficient was removed from the model).

[I] test of the interaction coefficient

[M] non-significant trend

Plots of all interactions can be found at the following URLs:

http://figshare.com/articles/MVP_Interactions_1/1466752

http://figshare.com/articles/MVP_Interactions_2/1466753 http://figshare.com/articles/MVP_Interactions_3/1466754

Supplementary material S9: Summary of Included Effects: The BR paradigm.

Demographic information.

The mean age of participants included in the BR effects was 27.67 (range: 20 – 71). The gender ratio (females: males) was 2.64 (range: 1- 9.5). 24 effects were defined as being from undergraduate populations, 14 were defined as “consenting adults” (usually a mixture of university students and staff) 1 was an elderly population (mean age 71) and 5 had a clinical anxiety disorder. None of these demographic variables were significant moderators of effect size.

Study/Effect	Method	Source	Notes
1) Alpers et al., 2005 (i)	*t&N*	p.29	The difference between the predominance ratio for CS+ and the CS- at baseline (before conditioning) versus the same predominance ratio after block 3 (after conditioning). Calculated from t value (Experiment 1: p 29). No t statistics/ degrees of freedom are reported for the initial percept.
Alpers et al., 2005 (ii)	*t&N*	p.30	The difference between the predominance ratio for CS+ and the CS- at baseline (before conditioning) versus the same predominance ratio after block 4 (after conditioning). Calculated from t value. No statistics are reported for the initial percept In both of the experiments in this study we think a comparison of the final block to baseline is optimal, since it compares the most threatening (i.e. most conditioned) stimulus to a baseline.
2) Alpers & Pauli, 2006	*t&N*	p.603	The initial percept data does not contain an explicit comparison between threat and neutral- the data are collapsed across all emotional stimuli for this analysis- thus this can not be included **(see 'inclusion criteria' no 3 in the main text**).
3) Alpers & Gerdes, 2007 (i)	*t&N*	p.499	
Alpers & Gerdes, 2007 (ii)	*t&N*	p.499	
Alpers & Gerdes, 2007 (iii)	*t&N*	p.500	The initial percept data (for all experiments: 1, 2 and 3) does not contain an explicit comparison between threat and neutral- the data are collapsed across all emotional stimuli for this analysis. Experiment 3 also collapses all analyses across all emotional stimulus types. Thus none of this data can be included **(see 'inclusion criteria' no 3 in the main text**).
4) Bannerman et al., 2008 (i)	*t&N*	p 320	
Bannerman et al., 2008 (ii)	*p=.001*	p 324	No exact p value is reported so upper bound is assumed.
Bannerman et al., 2008 (iii)	*p=.5*	p.324	Calculated by assuming a p value of 0.5 to achieve a representative sample of outcomes (**see section S4 -** direction of effect inferred from figure on p 323).
5) Yoon et al., 2009 (i)	*t&N*	Provided by author	
Yoon et al., 2009 (ii)	*t&N*	Provided by author	
Yoon et al., 2009 (iii)	*t&N*	Provided by author	
6) Gray et al., 2009 (i)	*t&N*	Provided by author	
Gray et al., 2009 (ii)	*t&N*	Provided by author	
Gray et al., 2009 (iii)	*t&N*	Provided by author	
Gray et al., 2009 (iv)	*t&N*	Provided by author	
7) Armting et al., 2010 (i)	*t&N*	p 10041	
Armting et al., 2010 (ii)	*p=.5*	p 10041	Figure on p 10041 indicates non-significance. Thus effect size calculated by

			section S4. Direction of effect inferred from figure on same page).
8) Anderson et al., 2011 (i)	*t&N*	p. 1447	
Anderson et al., 2011 (ii)	*t&N*	p. 1448	
9) Bannerman et al., 2011 (i)	*t&N*	p.375	
Bannerman et al., 2011 (ii)	*p=.6*	p.375	Calculated by assuming the minimum p value indicated in text. Direction of effect inferred from figure on same page.
Bannerman et al., 2011 (iii)	*t&N*	p.375	
Bannerman et al., 2011 (iv)	*p=.7*	p.375	Calculated by assuming the minimum p value indicated in text. Direction of effect inferred from figure on same page.
10) Ritchie et al., 2012 (i)	*t&N*	Provided by author	
Ritchie et al., 2012 (ii)	*t&N*	Provided by author	For both experiments, we took the data from the foveal condition only, to ensure that the stimulus conditions were most similar to the other studies in the analysis (which generally present stimuli foveally).
11) Lerner et al., 2012 (i)	*p=.05*		No exact p value is reported so upper bound is assumed (**see section S4**).
12) Singer et al., 2012 (i)	*t&N*	Provided by author	
Singer et al., 2012 (ii)	*t&N*	Provided by author	
Singer et al., 2012 (iii)	*t&N*	Provided by author	
Singer et al., 2012 (iv)	*t&N*	Provided by author	
Singer et al., 2012 (v)	*t&N*	Provided by author	
Singer et al., 2012 (vi)	*t&N*	Provided by author	
13) Anderson et al., 2013 (i)	*p=.5*	p.623	
Anderson et al., 2013 (ii)	*p=.5*	p.624	"Scowling" is an expression of anger, so the stimuli used in this study are coded as angry. The focus of this study is differences in threat-bias between groups and no within groups threat-biases are included. However, we collapsed across groups and refer to the "main effect of face type" being non-significant and assume a p value of .5 (**see section S4).** Directions of effects are inferred from the table on page 622).
14) Gerdes & Alpers., 2014 (i)	*p = .5*	p. 19	
Gerdes & Alpers., 2014 (ii)	*t & N*	p. 19	Both effects from this study are from the initial percept measure. Only between group differences are reported for continuous rivalry.

A document containing further details about each included effect (graphclick files, screenshots of the relevant sections of papers) can be obtained from the authors on request.

Supplementary Material S10: Main Effects and Interactions: The BR paradigm

Table S6

Moderators of Threat-related Bias in the BR Paradigm: Main Effects.

Moderator	*k*	*df*	Q^O	*p*	R^2
Stimulus type	31	5	13.24	.021*	29.92
Dominance measure	31	1	3.08	.079^M	6.86
Design	31	1	4.01	.045*	12.96
Retinal size	26	1	3.59	.058^M	12.81
Rivalry trial length	20	1	0.33	.568	0.00
STAI-T	17	1	0.19	.657	0.00

Plots of all main effects can be found at the following URL:

http://figshare.com/articles/BR_Main_effects_1/1466755

Table S7

Moderators of Threat-related Bias in the BR Paradigm: Two-way Interactions.

Moderators	*k*	Model matrix full?	*df*	Q^1	*p*	R^2
Stimulus type x dominance measure	31	No	2	2.50	.286	57.60
Stimulus x design	31	No	2	0.47	.791	51.98
Stimulus type x retinal size	26	No	2	0.18	.915	0.00
Stimulus x rivalry trial length	20	No	2	0.22	.897	48.60
Stimulus x STAI-T	17	No	2	0.04	.981	0.00
Dominance measure x Design	31	Yes	1	1.62	.203	27.20
Dominance measure x retinal size	26	Yes	1	3.40	.065[M]	31.07
Dominance measure x STAI-T	17	Yes	1	1.50	.221	7.29
Design x retinal size	26	Yes	1	2.65	.103	32.18
Design x rivalry trial length	20	Yes	1	0.12	.729	17.51
Design x STAI-T	17	Yes	1	4.25	.039[*]	30.81
Retinal size x STAI-T	15	Yes	1	0.01	.972	0.00

Plots of all interactions can be found at the following URLs:

http://figshare.com/articles/BR_Interactions_1/1466756

http://figshare.com/articles/BR_Interactions_2/1466757

Supplementary Material S11: Summary of Included Effects: the bCFS Paradigm.

Demographic information.

The mean age of participants included in the bCFS effects was 21.94 (range: 9 – 39). The gender ratio (females: males) was 2.64 (range: 0.33- 88). 29 effects were defined as being “consenting adults” (usually a mixture of university students and staff) and 4 were defined as undergraduate students. 2 were child populations (mean age 9). None of these demographic variables were significant moderators of effect size.

Study/Effect	Method	Source	Notes
1) Yang, et al., 2007 (i)	*t&N*	p.884	
Yang, et al., 2007 (ii)	*t&N*	p.884	
Yang, et al., 2007 (iii)	*t&N*	p.884	
Yang, et al., 2007 (iv)	*t&N*	p.884	We do not include data from experiment 3, since only eye stimuli are used (see **'other coding and inclusion decisions' no 6** in the main text).
2) Sterzer at al., 2011	*p=.01*	p 1620	No exact p value is reported so upper bound is assumed (direction of effect is inferred from figure on p 1620). Data is taken from the control group.
3) Sylvers et al., 2011 (i)	*t&N*	p.1283	
Sylvers et al., 2011 (ii)	*t&N*	p.1283	
4) Yang & Yeh., 2011 (i)	*F & N*	p. 225	
Yang & Yeh., 2011 (ii)	*F & N*	p. 225	
Yang & Yeh., 2011 (iii)	*F & N*	p. 228	
Yang & Yeh., 2011 (iv)	*F & N*	p. 228	
5) Chen & Yeh, 2012 (i)	*t & N*	Provided by author	This effect represents the difference in response time between detecting fearful and neutral faces, collapsed across the direction of eye gaze (direct/ averted).
6) Stein & Sterzer, 2012	*t & N*	Provided by author	The remaining experiments (2-4) have no explicit comparison between threatening and neutral stimuli and so are not included.
7) Stewart et al (i)	*t & N*	p. 719	Here, and for the rest of the effects reported in this study, we calculate our effect based on the difference in response time between the "most" untrustworthy or dominant face and the neutral face (see **'other coding and inclusion decisions' no 4** in the main text).
Stewart et al., 2012 (ii)	*t & N*	p. 719	
Stewart et al., 2012 (iii)	*t & N*	p. 719	
Stewart et al., 2012 (iv)	*t & N*	p. 719	
Stewart et al., 2012 (v)	*t & N*	p. 721	
Stewart et al., 2012 (vi)	*t & N*	p. 721	
8) Gray et al., 2013 (i)	*t & N*	Provided by author	
Gray et al., 2013 (ii)	*t & N*	Provided by author	
Gray et al., 2013 (iii)	*t & N*	Provided by author	
Gray et al., 2013 (iv)	*t & N*	Provided by author	
9) Stein et al., 2014 (i)	*t & N*	Provided by author	Both effects for this study represent the difference in response time between fearful faces and neutral faces in a broadband spatial frequency (see **'other coding and inclusion decisions' no 6** in the main text).
Stein et al., 2014 (ii)	*t & N*	Provided by author	
10) Capitao et al., 2014 (i)	*p & N*	p. 1030	Direction is inferred from figure
11) Oliver et al., 2014 (i)	*p=.001*	p. 7	Data is taken from the "subjective awareness" measure- since this is most analogous to that from other studies.
Oliver et al., 2014 (ii)	*p & N*	p. 7	Direction is inferred from figure.
Oliver et al., 2014 (iii)	*p =.001*	p. 13	
Oliver et al., 2014 (iv)	*p & N*	p. 13	Direction is inferred from figure.

			this study, we calculate our effect based on the difference in response time between the "most" untrustworthy or dominant face and the neutral face (see **'other coding and inclusion decisions' no 4** in the main text).
Getov et al., 2014 (ii)	*t & N*	p.4	
13) Jusyte et al., 2015 (i)	*M and SDdiff*	p.290	For all the effects in this study, we used GraphClick software to calculate the mean differences and standard deviation of the difference scores to compute d. This information is displayed in figure 2 in this paper.
Jusyte et al., 2015 (ii)	*M and SDdiff*	p.290	
Jusyte et al., 2015 (iii)	*M and SDdiff*	p.290	
14) Hedger et al., 2015 (i)	*t & N*	Provided by author	Provided by author

A document containing further details about each included effect (graphclick files, screenshots of the relevant sections of papers) can be obtained from the authors on request.

Supplementary material S12: Main effects and Interactions: The BR Paradigm

Table S8

Moderators of Threat-related Bias in the bCFS Paradigm: Main Effects.

Moderator	*k*	*df*	Q^O	*p*	R^2
Stimulus type	27	6	41.32	<.001***	65.38
Awareness measure	27	1	0.19	.661	0.00
Retinal size	22	1	0.77	.379	0.00

Plots of all main effects can be found at the following URL:

http://figshare.com/articles/bCFS_Main_effects_1/1466762

Table S8

Moderators of Threat-related Bias in the bCFS Paradigm: Two Way Interactions.

Moderators	*k*	Model matrix full?	*df*	Q^1	*p*	R^2
Stimulus type x awareness measure	27	No	1	0.24	.625	59.97
Stimulus type x retinal size	22	No	2	3.90	.142	61.19

Note: Interaction between Awareness measure and retinal size could not be calculated due to empty cells.

Plots of all interactions can be found at the following URL:

http://figshare.com/articles/bCFS_Interactions/1466763

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