What are Health Baseline Comparisons?

The term ‘HEALTH BASELINE COMPARISON’ (HBC) refers to the baseline used for comparisons by people evaluating their current health status. To determine whether health is ‘good,’ ‘bad’ or ‘indifferent,’ a comparison with a baseline is necessary. This baseline is influenced by past health, social representations of health obtained from the media, comparisons with other people, or alternatively, consideration of current personal circumstances. All of these factors at any one time may play a role in the health baseline invoked. HBCs can be ‘accurate’ or ‘inaccurate’ (AHBC and IHBC, respectively). Comparisons between present and past health or with social idealisations of health can be less accurate, whereas consideration of current personal circumstances is more likely to produce perceptions of health status that might be more realistic. For example, changes in functional ability could be due to illness or ageing; therefore, health baselines should naturally change throughout the lifespan and in accordance with any contracted illness or disability. Adapting HBCs in accordance with such inevitable changes could facilitate acceptance of uncontrollable health deteriorations; it could subsequently encourage individuals to behave according to actual health status, rather than to a possibly less realistic health status. To clarify, an accurate health baseline is taking into consideration changes to health and adapting to these changes so as to enhance acceptance, adjustment and well-being.

Supporting research

Core research that has informed the development of HBC theory can be found in the Self-Regulatory Model (SRM) developed by Leventhal et al. (1980). Self-regulation is defined as ‘those processes, internal and/or transactional, that enable an individual to guide his/her goal-directed activities over time and across changing circumstances’ (Karoly, 1993, pp.23–52). The SRM suggests that illness is dealt with in the same way as other problems. HBC theory extends this notion by acknowledging that health and illness perceptions may be inaccurate and inappropriate coping strategies may be sought or, alternatively, no effort might be made to cope with a health problem. Leventhal’s model assumes that given a health crisis or general change in health status quo, the individual will be motivated to solve this problem in order to re-establish a state of normality. Similarly, HBC theory predicts that given a problem or change in health, the individual will be motivated to cope and adjust to this situation in order to re-establish baseline health status.

HBC theory also shares some features of social comparison theory (Festinger, 1954), which suggests that individuals make sense of their world by comparing themselves to certain others. Festinger theorised that social comparisons are one of the most important influences on self-judgements. Such comparisons can either be downward, whereby a comparison is made with those who are perceived to be worse off, or upward, whereby a comparison is made with those who are considered better off. In the context of HBCs, upward or downward comparisons would be based on judgements of health. For example, an individual with a respiratory disease who judges their current health according to someone of similar age but without this disease will be prone to a downward comparison due to the contrasting health status.
Health baseline comparisons in rheumatoid arthritis

An initial study was conducted to examine the predictive ability of HBC theory. In this study accurate and inaccurate HBCs were explored in relation to rheumatoid arthritis (RA), a chronic, inflammatory autoimmune disorder that causes the immune system to attack the joints. Research conducted by Groarke et al. (2004) revealed that perceptions of disease are more influential in adaptation to RA than actual disease status. Perceptions of disease explained 27 per cent of the variance in depression, 23 per cent in physical functioning, and 22 per cent in pain. Groarke et al. report that illness perceptions explained 23 per cent of variance in physical function over and above the 15 per cent explained by disease status; the pattern of predictors being the same for pain. These findings indicate that researchers should focus on subjective perceptions of illness as well as objective health status; there is also a need to investigate how subjective perceptions of illness are formed. It could be argued that HBCs might play an important role in this process; more specifically, an IHBC could worsen these negative experiences whereas an AHBC could reduce them. It is necessary to differentiate between those who do and do not adjust successfully to RA and other conditions, so as to increase effective interventions to improve quality of life in acute and chronic illness.

Method
Participants:
Participants (N=68) from the National Rheumatoid Arthritis Society (NRAS) were aged between 20 to 60+ years. Participants were predominately female (N=52) with disease duration spanning three months to 52 years. Fifty per cent had moderate RA, 35.3 per cent severe, and 14.7 per cent mild.

Procedure:
The NRAS distributed a series of questionnaires to participants via e-mail, along with a covering letter of participant information providing details of the study; completed questionnaires were returned to the researcher via the same method. The series of questionnaires included a HBC scale to measure levels of HBC accuracy, a COPE scale to measure the use of particular coping styles, and the Arthritis Impact Measurement Scale (AIMS) to measure objective health status and psychosocial adjustment to RA.

Scales:
HBC Questionnaire (HBCQ)
The 13-item HBCQ was developed by the researcher based on the theory of HBC and related literature discussed above. The questionnaire measured HBC accuracy and perceived health. Perceived health items were intended for comparison with AIMS scores to determine the accuracy of these perceptions and the degree of consistency between perceived and actual health. The health baseline comparison items were intended to produce scores to be categorised as either ‘accurate’ or ‘inaccurate’ according to the extent to which participants agreed or disagreed with statements regarding how their current health status was judged. Items included: ‘I am as healthy as anyone I know’; ‘I am not as healthy as I used to be’; ‘I judge my health according to media representations’; and so on. Items were rated on a four-point Likert scale of ‘strongly agree’/’strongly disagree,’ with higher scores reflecting a less accurate HBC and a lower perceived health status. The option of ‘undecided’ was intentionally omitted so as to encourage decision making among participants. A pilot study of 16 individuals from an RA internet support group revealed the HBCQ to be effective in its required aims. However, the reliability of this new scale was reasonably low, with a Cronbach’s alpha of 0.36 for the HBC subscale and a much more acceptable 0.50 for the perceived health subscale. This has been resolved in current HBC research whereby the scale has so far achieved a Cronbach’s alpha of 0.73 on a small pilot study.
COPE
An adapted version of the COPE Questionnaire (Carver et al., 1989) was utilised. Two adaptive coping styles were selected (i.e. acceptance, positive reinterpretation and growth), two maladaptive coping styles (i.e. denial, behavioural disengagement), and one ‘filler’ coping style of humour. The scale was scored on a five-point Likert scale of ‘I don’t do this at all’/’I do this a lot’, with higher scores reflecting more frequent use of a particular coping style. The internal consistency of these subscales is acceptably high and above 0.6 on Cronbach’s alpha (Carver et al., 1989).

AIMS
The 63-item AIMS (Meenan et al., 1980), an assessment of physical, emotional and social well-being, was divided into the subscales of physical functioning, social activity, and pain. These subscales were used to evaluate objective health status and to compare this with perceived health in order to determine levels of consistency and thus establish participants as having a more or less realistic perceived health. The depression and anxiety subscales were used to identify relationships between AHBC or IHBC and psychological adjustment to RA. The scale was scored on a five-point Likert scale of ‘all days’/’no days’, according to how frequently symptoms associated with RA were experienced; higher scores reflected poorer health. The reliability of AIMS has been demonstrated across rheumatic diseases, with a Cronbach’s alpha of between 0.72 to 0.91 for each subscale (Meenan et al., 1980).

Results
Before the analysis of results commences, attention is to be raised to the demographic details of participants. Participants were predominately female (N=52) and had a mean age of 51 to 60 years old. The mean duration of RA among participants was nine years (SD=11.19) and the mean severity of RA was moderate (50 per cent). There was a wide diversity of disease duration, the minimum being three months and the maximum being 52 years.

Descriptive statistics

<table>
<thead>
<tr>
<th>Descriptive</th>
<th>No. of Participants</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>68</td>
<td>51–60 years (N=23)</td>
</tr>
<tr>
<td>Gender</td>
<td>68</td>
<td>Female (N=52)</td>
</tr>
<tr>
<td>Severity</td>
<td>68</td>
<td>Moderate (N=34)</td>
</tr>
<tr>
<td>Duration</td>
<td>68</td>
<td>9.306</td>
</tr>
</tbody>
</table>

Data from participants was analysed in a sequence that enabled outcomes of HBCs and then the importance of HBCs to be either supported or disputed. This sequence commenced with a Pearson Chi-Square to identify the affect of HBCs on perceived health, followed by a two-factor mixed design ANOVA analysing the interaction between HBCs and the adoption of adaptive and maladaptive coping styles. To conclude, a Pearson’s ($r$) Product Moment Correlation was carried out to identify whether levels of HBC accuracy co-vary with levels of depression and anxiety.

Hypothesis 1: Individuals with an AHBC will have a more realistic perceived health than those with an IHBC.

Seventy-five per cent of participants with an AHBC had more realistic perceived health. This compares to those with an IHBC, where only 20 per cent had a more realistic perceived health but as many as 80 per cent had a less realistic perceived health. Pearson Chi-Square showed the relationship between HBC accuracy and the reality of perceived health to be highly significant ($\chi^2=17.631, df=1, p<0.001$).
**Hypothesis 2:** Maladaptive coping styles will be more frequent in individuals with an IHBC than an AHBC.

A two-factor mixed design ANOVA showed adaptive coping to be similar among those with an AHBC (mean=24.40; SD=4.63) and an IHBC (mean=24.15; SD=5.62). The mean score for maladaptive coping was higher in those with an IHBC (mean=12.50; SD=3.40) than an AHBC (mean=10.96; SD=3.70), but findings failed to reach acceptable significance.

**Hypothesis 3:** There will be a positive correlation between IHBC and anxiety/depression.

Pearson’s \( r \) Product Moment Correlation demonstrated that as HBC inaccuracy increased, levels of depression also increased. This correlation was statistically significant \((r=0.261, p<0.05)\). No significant relationship was apparent between HBC inaccuracy and anxiety \((r=0.095, p>0.05)\).

**Discussion**

The significant correlation between HBC accuracy and depression levels suggests a role for HBC in adjustment to RA. This role does not appear to be related to coping styles as individuals with an inaccurate HBC did not engage in more maladaptive coping styles than those with an accurate HBC. The role of HBC in adjustment to RA appears to be more related to the significant inconsistency between perceived and actual health associated with an IHBC.

Of great interest was the lack of significant relationship between HBC accuracy and anxiety levels. It could be concluded that a certain level of anxiety is natural with a progressive condition such as RA. In fact, there is evidence that anxiety is likely to contribute towards successful adjustment to illness and the promotion of well-being, at least in the early stages; by promoting action to reduce anxiety levels. Examples of such action might include the seeking of social support (Catania, 1992) or medical consultation (Hu et al., 2002; Cheng, 2000). Therefore, anxiety is not necessarily a detriment in illness adjustment but may be an important part of the adjustment process. In the context of the present study, this notion can be supported by the fact that a majority of participants presented with a significant level of anxiety, scoring reasonably high on the AIMS anxiety scale, yet this did not necessarily relate to their overall well-being. Future HBC research may gain from a greater focus on those affective factors that are purely detrimental to illness adjustment.

**Future research**

The scope for further research into the implications of HBC for health status is considerable. The applicability of HBCs to unrealistic optimism (Weinstein, 1983) is one of many possible developments. Weinstein (1983) suggests that individuals continue to practise unhealthybehaviours due to inaccurate perceptions of risk and susceptibility, which he termed ‘unrealistic optimism’. Evidence has accumulated to support this relationship (Weinstein, 1987; Weinstein, 1999). HBC theory expands on the possibility of individuals genuinely believing they are not susceptible to certain illnesses because they are, as far as they have evaluated, in good health; as such HBCs could be used to supplement the cognitive components that contribute to unrealistic optimism. Much research is based on understanding how to manage and reduce unrealistic optimism, yet HBC theory could, perhaps, facilitate understanding into what constitutes realistic optimism; a potentially important factor in quality of life and adjustment to illness.

Since HBC theory has similarities to social comparison research, it could be beneficial to assess the conditions under which HBCs are upward or downward, the subsequent health outcomes of such judgements, and the most effective periods for interventions. This would have been a valuable addition to the present study since IHBCs in the form of downward comparisons have been found to be particularly prevalent in arthritis (DeVellis et al., 1991).
Findings suggest that HBCs may play a significant role in mental health. Depressed individuals tend to use upward comparisons (Ahrens & Alloy, 1997); therefore, it would be worth investigating whether they also use upward HBCs. The very nature of depression could have extremely detrimental effects on the way illness is coped with and adjusted to as well as on the success or failure of any treatment outcomes. Possible future research could apply the theory specifically to mental health and recovery, and examine whether depressed individuals have a less realistic outlook on their health status.

The next stage
The next stage for HBC theory is in the further development of a questionnaire to measure the accuracy of HBCs. This measure will then be used in the field of oncology to assess the implications of accurate and inaccurate HBCs in cancer patients and the implications of these judgements for prognosis and subsequent adjustment. It is envisaged that, ultimately, AHBCs could provide some insight in the initial seeking of a diagnosis, treatment choices made following diagnosis, participation in health promotion interventions, and the enhancement of patient choice and quality of life.

Acknowledgements
Gratitude is extended to Alex Buckley, who made a huge contribution to the development of the theory and notions outlined in this paper. His ideas and support have been fundamental to the creation of HBC theory. Gratitude is also given to the NRAS to whom this research would not have run as smoothly without.

Authors
Nicola Davies & Gail Kinman
University of Bedfordshire (formerly University of Luton).

Correspondence
Nicola Davies
Cranfield University,
26 The Crescent,
Wharley End, Cranfield,
Bedfordshire, MK43 0SU.
E-mail: n.davies.s06@cranfield.ac.uk

References


---

**The British Psychological Society**

**Division of Health Psychology Training Committee**

**Call for expressions of interest**

The Division of Health Psychology Training Committee would welcome Statements of Interest from Chartered Health Psychologists who are familiar with health psychology training issues, either from an academic or a practitioner perspective, and would be willing to serve on this Committee.

The Committee is concerned with promoting and ensuring high standards of training in health psychology and in the review and monitoring of these standards.

The Committee generally meets four times a year, either at the Society's office in London or occasionally by teleconference. Committee members must also be prepared to take part in and convene accreditation visits.

Statement of Interest forms and further information are available from Molly Ross at the Society's Leicester office either by telephone on **0116 252 9509**, or by e-mail at molly.ross@bps.org.uk.