How IBD patients cope with IBD: A systematic review

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Abstract

Objective: Inflammatory bowel disease (IBD) can have a significant impact on psychological wellbeing and quality of life. How one responds to and copes with IBD may be an important determinant of psychological wellbeing. We aimed to systematically review all published literature regarding coping strategies of IBD patients.

Methods: Ovid and Pubmed databases were searched over 6 months. All articles about coping strategies of IBD patients were included.

Results: Thirty-nine articles using twenty-two survey instruments were found, of which twenty-six were adult exclusive, eleven were children exclusive, and two had both adults and children. Two were interventional, four were longitudinal, and the rest were cross-sectional studies. Four studies were qualitative while the rest used quantitative measures. Variance in research designs and coping instruments led to inconsistent results. The most common theme was that emotion-focused coping was associated with worse psychological outcomes, while the effect of problem-focused coping was less consistently associated with better psychological outcomes.

Conclusions: More longitudinal and interventional studies are needed to causally link coping strategies with psychological outcomes in IBD patients.

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1. Introduction

1.1. Inflammatory bowel disease

Inflammatory bowel disease (IBD), a chronic relapsing–remitting inflammatory condition of the intestines, comprises Crohn’s disease (CD) and ulcerative colitis (UC).

Many studies have reported a profound impact of the disease on the psychological wellbeing of patients. Coping aims to diminish the physical, emotional and psychological burden that is linked to stressful life events, such as chronic illness, and is considered to be adaptive when it leads to the reduction, or overall elimination of, distress. The problem (e.g., IBD) may still be present, but the person is less distressed in any emotional, social, or physiological manner. A debate surrounds the stability of coping: some argue that it is stable across time and situations while others argue that it is subject to change between situations.

Coping has been shown to be an important determinant of outcomes in numerous disease populations, such as Alzheimer’s disease, rheumatoid arthritis, chronic obstructive pulmonary disease, psoriasis, and sickle cell disease.

1.2. Coping

Coping can be characterised in many ways, with one literature review describing over 400 individual coping methods. Coping may be broadly defined as “...cognitive and behavioural efforts to manage specific external or internal demands (and conflicts between them) that are appraised as taxing or exceeding the resources of a person.” Coping aims to diminish the physical, emotional and psychological burden that is linked to stressful life events, such as chronic illness, and is considered to be adaptive when it leads to the reduction, or overall elimination of, distress. The problem (e.g., IBD) may still be present, but the person is less distressed in any emotional, social, or physiological manner. A debate surrounds the stability of coping: some argue that it is stable across time and situations while others argue that it is subject to change between situations.

Coping has been shown to be an important determinant of outcomes in numerous disease populations, such as Alzheimer’s disease, rheumatoid arthritis, chronic obstructive pulmonary disease, psoriasis, and sickle cell disease.

1.3. Common sense model

Coping is commonly depicted within the framework of the Common Sense Model of Illness (CSM) which was first proposed by Leventhal et al. and has subsequently been supported by a number of studies within various illnesses. This model proposes that a sick person’s psychological outcomes (e.g., anxiety, depression, QOL) will be predicted by several factors: disease severity, illness perceptions, and...
coping styles (see Fig. 1). In IBD, disease severity is
determined by symptoms such as rectal bleeding, diarrhoea
and pain while illness perceptions comprise factors such as
perceived cause, controllability, and consequences of IBD.20
Coping styles will be influenced, in part, by these percep-
tions. Furthermore, coping styles and illness perceptions will
collectively determine the psychological outcomes.21 The
original description of CSM also states that there are
feedback loops linking each stage to the previous stage,
thus allowing evaluation and appraisal.18

1.4. Problem- versus emotion-focused coping

The problem versus emotion-focused framework is consid-
ered the most useful and utilised characterisation of coping.
Problem-focused coping aims to alter or eliminate the
source of stress while emotion-focused coping aims to
reduce the emotional distress caused by the situation.7,22,23
Seeking information, witholding actions, and confronting
the problem are examples of problem-focused coping.24 For
instance, an IBD patient reading a book about IBD would be a
problem-focused (i.e. seeking information) strategy.
Meanwhile, emotion-focused coping can include "positive
reappraisal, cognitive restructuring, avoidance, distancing,
selectively attending, denying, or distraction".24 For
example, an IBD patient telling themselves that "this isn’t
real" would be an emotion-focused (i.e. denying) strategy.
Some studies have separated coping into "avoidant" versus
"active"25,26 as well as "primary" versus "secondary"
coping25,27; due to the similarity of the definitions, these
will be treated as emotion- versus problem-focused coping,
respectively.

1.5. Aims

Despite the large number of studies about coping in IBD
patients, there has been no systematic review. Our aim is to
review all studies of how individuals cope with IBD and we
focus on coping style, its effectiveness and outcomes.

2. Methods

2.1. Search strategy

Ovid and Pubmed databases were searched over the course
of 6 months, from January to June, 2011; there was no
restriction on the years searched. Key words used in the
searches were: (cope OR coping) AND (ibd OR cd OR uc OR ic
OR inflammatory bowel disease OR Crohn's disease OR
ulcerative colitis OR indeterminate colitis). Abstracts were
then investigated, and articles of relevance were included.
A study was considered relevant if it used a coping
instrument, included IBD patients and was in English. A
number of studies were excluded because they were not
published in English.28–36 Reference lists from each article
were searched to ensure all articles in the domain of coping
and IBD were captured.

2.2. Methods for measuring coping

Table 1 shows the wide variety of instruments that have
been used to measure coping in IBD populations and also
includes the full titles of each instrument referred to below.
The most common characterisation is the emotion- versus
problem-focused coping dichotomy. WCC and WCQ37–40
separated coping into problem- versus emotion-focused
domains.41,42 However, Carver et al. argued that the
grounded theory approach to the development of earlier
scales was less desirable and so developed the COPE using a
hypothesico-deductive approach.43 The COPE25,44 separated
coping into emotion-focused, problem-focused, and mal-
adaptive strategies.43 The Brief COPE21,26,40,45,46 was
subsequently developed to be more efficient.47 Meanwhile, the
JCS,23,48–50 RSCS,51 FQCD,52,53 Coping Strategies Inventory
(CSIa),54 Coping Strategies Indicator (CSI b), and CSQ55,56
have been used to measure problem- and emotion-focused
coping; in adult IBD studies; and the PPCI,57 CISS-21,58 UCL-
A,59 and RSQ- Child with IBD60 has measured coping in
paediatric IBD studies.

Other questionnaires that do not classify coping using
emotion- versus problem-focused strategies have been used:
the VPMS,60,61 which measures active versus passive
coping; the CRI,62 which measures cognitive versus beha-
vioural; and the MBHI,63 which measures eight coping
styles, have been used on adult populations. Meanwhile,
the A-COPE,64 which measures adaptive versus maladaptive
coping; and CCSS-c,65 which measures predictive control,
vicarious control, and interpretive control, have been used
in paediatric populations. Parental reports of children’s
symptoms have been used in four studies: the CHIP64,65 was
used in two studies, the RSQ-Parent-IBD24 was used in one
study, and Coping Inventory was used in another study.13
Lastly, some studies have utilised qualitative measures of
coping strategies.66–69

3. Results

3.1. Summary of the research methods

Tables 2 and 3 summarise the studies of IBD and coping in
adults and children, respectively. A total of thirty-nine studies
were included: twenty-six included adults exclusively,
21,23,25,26,37–40,44,45,48–52,55,56,61–63,66–68,70,71 eleven focused on
children or adolescents,13,24,27,54,57–59,64,65,69,72 and one meta-
analysis73 and one study66 included data on coping strategies of
both adults and adolescents. Research designs varied: two non-
interventional studies measured coping at more than one time-
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Coping assessment instrument</th>
<th>Intended population</th>
<th>Scales</th>
<th>Questions/Subscales</th>
<th>IBD study</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOC/WCC</td>
<td>Ways of Coping/ Ways of Coping Checklist</td>
<td>Adults</td>
<td>Problem-/emotion-focused, seeking social support</td>
<td>66 items (4-point Likert scale). One problem-focused scale has eleven items, six emotion-focused scales have 24 items, and &quot;seeking social support&quot;, containing both problem- and emotion-focused items has seven items.</td>
<td>37–39</td>
</tr>
<tr>
<td>WOC/WCQ</td>
<td>Ways of Coping/ Ways of Coping Questionnaire</td>
<td>Adults</td>
<td>Problem-/emotion-focused, seeking social support</td>
<td>68 items (yes–no format); otherwise, the WCQ is identical to WCC.</td>
<td>40</td>
</tr>
<tr>
<td>COPE</td>
<td>Coping Operations Preference Enquiry</td>
<td>Adults</td>
<td>Problem- vs emotion- vs maladaptive coping</td>
<td>Likert scales (1 to 4). Problem-focused coping (5 subscales): active coping, planning, suppression of competing activities, restraint coping, and seeking of instrumental social support. Emotion-focused coping (5 subscales): seeking of emotional social support, positive reinterpretation, acceptance, denial, and turning to religion. Maladaptive coping (4 subscales): substance use, focus on and venting of emotions, behavioural disengagement, and mental disengagement.</td>
<td>25, 44</td>
</tr>
<tr>
<td>Brief COPE</td>
<td>Brief coping operations preference enquiry</td>
<td>Adults</td>
<td>Problem- vs emotion- vs maladaptive coping</td>
<td>14 scales (two items per scale) - four point Likert scales. Emotion-focused strategies (seeking of emotional social support, positive reframing, acceptance, humour, and turning to religion). Problem-focused strategies (active coping, use of instrumental support, and planning). Dysfunctional strategies (self-distraction, denial, substance use, behavioural disengagement, venting, and self-blame).</td>
<td>21, 26, 45, 46</td>
</tr>
<tr>
<td>JCS</td>
<td>Jalowiec Coping scale</td>
<td>Adults</td>
<td>Problem- vs emotion-focused coping</td>
<td>60 items with 8 subscales (confrontive, evasive, optimistic, fatalistic, emotive, palliative, supportant, and self-reliant. Confrontive and supportant are problem-focused whereas the others are emotion-focused.</td>
<td>23, 48–50</td>
</tr>
<tr>
<td>CISS-21</td>
<td>Coping Inventory for Stressful Situations</td>
<td>Adolescents and young adults</td>
<td>Task-oriented, emotion-oriented, and avoidance coping</td>
<td>21 items for three coping strategies: each coping strategy contains seven items. Respondents are asked to rate each item on a 5-point Likert scale.</td>
<td>58</td>
</tr>
<tr>
<td>RSCS</td>
<td>Rosenbaum Self-Control Schedule</td>
<td>Adults</td>
<td>See questions/subscales</td>
<td>36 items assessing four subscales (use of cognitions to cope with physiological and emotional responses, problem-solving strategies, ability to delay gratification, and general belief in one's ability to control internal events).</td>
<td>51</td>
</tr>
<tr>
<td>FQCD</td>
<td>Freiburg Questionnaire on Coping with Disease</td>
<td>Adults</td>
<td>See questions/subscales</td>
<td>35 items and five subclasses: depressive coping, active coping, distraction/self-affirmation, search for meaning, and cognitive avoidance/dissimulation.</td>
<td>52, 53</td>
</tr>
<tr>
<td>CSIa</td>
<td>Coping Strategies Inventory</td>
<td>Children</td>
<td>Engagement vs disengagement</td>
<td>Engaged coping scale includes problem-solving, cognitive restructuring, social contact, and express emotions; the disengaged coping scale includes problem avoidance,</td>
<td>54, 72</td>
</tr>
<tr>
<td>Acronym</td>
<td>Coping assessment instrument</td>
<td>Intended population</td>
<td>Scales</td>
<td>Questions/Subscales</td>
<td>IBD study</td>
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</tr>
<tr>
<td>CSI\textsuperscript{b}</td>
<td>Coping Strategies Indicator</td>
<td>Adults</td>
<td>Problem solving, seeking social support, and avoidance.</td>
<td>wishful thinking, self-criticism, and social withdrawal.</td>
<td>25</td>
</tr>
<tr>
<td>UCL-A</td>
<td>Utrecht Coping List for Adolescents</td>
<td>Adolescents</td>
<td>See questions/subscales</td>
<td>15 items pertaining to 3 subscales: problem solving, seeking social support, and avoidance.</td>
<td>59</td>
</tr>
<tr>
<td>CCSS-c</td>
<td>Cognitive Control Strategy Scale for Children</td>
<td>Adolescents</td>
<td>Predictive control, vicarious control, and interpretative control</td>
<td>44 items for seven scales: active problem handling, palliative reaction pattern, avoidance behaviour, social support seeking behaviour, depressive reaction pattern, expression of emotions and comforting cognitions.</td>
<td>59</td>
</tr>
<tr>
<td>VPMI</td>
<td>Vanderbilt Pain Management Inventory</td>
<td>Adults</td>
<td>Active vs passive pain management</td>
<td>Two subscales: active pain management (7 items) and passive pain management (11 items). Each strategy is rated on a 1–5 point scale, with scores ranging from 7–35 on the active scale to 11–55 on the passive scale.</td>
<td>61</td>
</tr>
<tr>
<td>CRI</td>
<td>Coping Responses Inventory</td>
<td>Adults</td>
<td>Cognitive vs behavioural</td>
<td>Cognitive (i.e. logical analysis, positive reappraisal, cognitive avoidance, acceptance) and behavioral (i.e. seeking support, problem-solving, seeking alternatives, emotional discharge) coping responses.</td>
<td>62</td>
</tr>
<tr>
<td>A-COPE</td>
<td>Adolescent Coping Orientation for Problem Experience</td>
<td>Adolescents</td>
<td>Adaptive vs maladaptive</td>
<td>Adaptive behaviours help &quot;maintain significant relationships and life roles&quot; (p. 8) and maladaptive behaviours hinder activities of day-to-day living or lead to the abandonment of generally &quot;accepted forms of personal gratification&quot;.</td>
<td>64</td>
</tr>
<tr>
<td>CHIP</td>
<td>Coping Health Inventory for Parents</td>
<td>Parents of adolescents</td>
<td>Family integration, family support and communication</td>
<td>Measures coping strategies of parents of children with a chronic illness. Higher scores indicate high-conflict family dynamics. The utility of the coping behaviour is rated by the parent on a scale from 0 to 3. It has three scales: family integration, family support and communication.</td>
<td>64, 65</td>
</tr>
<tr>
<td>RSQ- Child with IBD</td>
<td>Response to Stress Questionnaire-Child</td>
<td>Adolescents</td>
<td>Involuntary vs voluntary; primary vs secondary; and engagement vs disengagement</td>
<td>Six subscales: primary control engagement coping, secondary control engagement coping, primary control disengagement coping (e.g., avoidance and denial), secondary control disengagement coping, involuntary engagement coping and involuntary disengagement coping.</td>
<td>24, 27</td>
</tr>
<tr>
<td>RSQ-Parent IBD</td>
<td>Response to Stress Questionnaire-Parent</td>
<td>Parents of adolescents</td>
<td>See across</td>
<td>The parent reports their children's coping strategies in 57 questions for five subscales: primary control coping, secondary control coping, disengagement coping, engagement</td>
<td>24</td>
</tr>
</tbody>
</table>

(continued on next page)
point (i.e., were longitudinal), two examined psychological interventions and coping longitudinally, and the rest measured coping at one time-point (i.e., cross-sectional). One study was a meta-analysis; four used qualitative techniques; seven had healthy controls; eight included other gastrointestinal (GI) disease populations; one included an arthritis comparison group; three included parents of children or adolescents; and two only included women. Finally, outcome variables were varied: nine studies used anxiety as an outcome, ten used depression, eleven used QOL, and fourteen used other psychosocial measures.

### 3.2. Overview/summary of results of the studies

The relationships between coping and outcome variables were varied: twelve showed a strong relationship between coping and outcome measures, thirteen had mixed results, and two showed little to no effect of coping. Specifically, coping has been found to correlate with disease activity, depression, anxiety, QOL, and other closely related psychosocial constructs in IBD patients, although these data are not always consistent.

### 3.3. Emotion versus problem focused coping in IBD

Irrespective of the coping instrument used, emotion-focused coping has been associated with worse psychological outcomes. However, two studies showed a weak positive association between emotion-focused coping and psychological outcome measures. Meanwhile, one adolescent study showed some emotion-focused strategies to be adaptive (e.g., emotional modulation, acceptance) and others to be maladaptive (e.g., rumination, escape).

However, the relationships between problem-focused coping and outcomes were not as clearcut: one study demonstrated an association between problem-focused coping and better outcomes; two showed an association between problem-focused coping and worse outcomes; three had small effect sizes but were nonetheless associated with better outcomes, while five showed no relationship. The two studies which found problem-focused coping to be associated with worse outcomes used the FQCD, while those which found associations with better outcomes, or a lack of association altogether, used the WCC, Brief Cope, or JCS. All large studies with sample sizes of 150 patients or more have been performed in the domain of emotion versus problem-focused coping: eight involved adults, one involved adolescents, and one involved adolescents and adults.

### Table 1 (continued)

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Coping assessment instrument</th>
<th>Intended population</th>
<th>Scales</th>
<th>Questions/Subscales</th>
<th>IBD study</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBHI</td>
<td>Millon Behavioural Health Inventory</td>
<td>Adults</td>
<td>See across</td>
<td>coping, and involuntary disengagement coping. A 4-point Likert scale 150 true/false questions measuring eight coping styles: introversive, inhibited, cooperative, sociable, confident, forceful, respectful, and sensitive. Measures five forms of coping in adolescents: cognitive self-instruction, problem-solving skills, distraction skills, seeking social support, and catastrophising/helplessness.</td>
<td>63</td>
</tr>
<tr>
<td>PPCI</td>
<td>Paediatric Pain Coping Inventory</td>
<td>Adolescents</td>
<td>See across</td>
<td>Self-rating questionnaire; 48 items measuring two coping patterns (self and environment) on three continuums of coping behaviours (productive-nonproductive, active-passive, and flexible-rigid). Questions answered on a 5-point Likert scale.</td>
<td>57</td>
</tr>
<tr>
<td>CSQ</td>
<td>Coping Strategies Questionnaire</td>
<td>Adults</td>
<td>See across</td>
<td>50 items measuring eight scales: coping self-statements, catastrophising, diverting attention, ignoring pain sensations, praying and hoping, reinterpreting pain sensations, increasing activity level, and personal control.</td>
<td>55, 56, 70</td>
</tr>
<tr>
<td>Coping Inventory</td>
<td>Coping Inventory</td>
<td>Children/adolescents, and their parents</td>
<td>See across</td>
<td></td>
<td>13</td>
</tr>
</tbody>
</table>

Note: a and b = these have the same acronym, but are different scales.
Table 2  Adult coping studies and one meta-analysis.

<table>
<thead>
<tr>
<th>First author(s) and reference</th>
<th>Year</th>
<th>Coping instrument</th>
<th>Research methods</th>
<th>IBD cases</th>
<th>Controls</th>
<th>Response rate</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moskovitz et al. 38</td>
<td>2000</td>
<td>WOC</td>
<td>Coping measured at time of surgery QOL measured up to 15 months post-surgery.</td>
<td>42</td>
<td>41</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Jones 37</td>
<td>2006</td>
<td>WCC</td>
<td>QOL and coping measured.</td>
<td>33</td>
<td>15</td>
<td>0</td>
<td>74 IBS</td>
</tr>
<tr>
<td>Pellissier 39</td>
<td>2010</td>
<td>WCC-Revised</td>
<td>Many variables measured: psychological well-being, coping, health locus of control and &quot;sympatho-vagal balance&quot;.</td>
<td>26</td>
<td>22</td>
<td>21</td>
<td>27 IBS</td>
</tr>
<tr>
<td>Curtis 40</td>
<td>2006</td>
<td>WCQ</td>
<td>Measures of demographics, disease-related symptoms, coping, social support, illness-related self-disclosure and overall QOL.</td>
<td>60</td>
<td>33</td>
<td>3 (i.e. &quot;other IBD&quot;)</td>
<td>20% IBD patients used problem- and emotion-focused coping equally, although CD group used more problem- and emotion-focused coping than UC group. Emotion-focused coping related negatively to QOL. Coping did not mediate between illness perceptions and adjustment. Only behavioural disengagement had a moderate relationship with all 3 adjustment measures.</td>
</tr>
<tr>
<td>Dorrian 44</td>
<td>2009</td>
<td>COPE</td>
<td>Respondents completed a questionnaire assessing illness perceptions, coping, and adjustment.</td>
<td>26</td>
<td>54</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Graff 25</td>
<td>2009</td>
<td>COPE and CSI5</td>
<td>IBD patients compared with controls in terms of psychological health, coping, and perceived general health.</td>
<td>187</td>
<td>169</td>
<td>2699 from a national random-sample</td>
<td>For IBD, 86%. For controls, 83%</td>
</tr>
<tr>
<td>Kiebles 45</td>
<td>2010</td>
<td>Brief COPE</td>
<td>Illness perceptions, stress, emotional functioning, disease acceptance, coping, disease impact, and QOL measured.</td>
<td>17</td>
<td>21</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Voth 26</td>
<td>2009</td>
<td>Brief COPE</td>
<td>Self-blame, responsibility, disease severity, avoidant coping, and psychological adjustment measured.</td>
<td>165</td>
<td>73</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Knowles 21</td>
<td>2011</td>
<td>Brief COPE</td>
<td>Self-blame, responsibility, disease severity, avoidant coping, and psychological adjustment measured.</td>
<td>96</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>First author(s) and reference</th>
<th>Year</th>
<th>Coping instrument</th>
<th>Research methods</th>
<th>Participants</th>
<th>Disease severity, coping styles, illness perceptions, and anxiety and depression measured.</th>
<th>Coping resulted in a significant reduction in depression, but not anxiety.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Larsson23</td>
<td>2008</td>
<td>JCS</td>
<td>Coping, QOL, and anxiety and depression were measured.</td>
<td>246</td>
<td>496 0 0 0 742/1043 responded (71%) QOL weakly associated with coping. No differences found between those in remission and relapse.</td>
<td></td>
</tr>
<tr>
<td>Kinash48</td>
<td>1993</td>
<td>JCS</td>
<td>Coping, personality, and depression were measured.</td>
<td>88</td>
<td>62 0 0 150/205 (73%) Emotion-., but not problem- focused coping, led to more depression. Patients used problem- more than emotion-focused coping.</td>
<td></td>
</tr>
<tr>
<td>Smolen49</td>
<td>1998</td>
<td>JCS</td>
<td>Perceived health, functioning, coping, and well-being among patients with IBD were measured.</td>
<td>33</td>
<td>13 0 0 46/52(88.5%) returned questionnaires Emotion- but not problem-focused coping inversely associated with perceived health, wellbeing, and functioning. Emotion-focused coping predicted 20% of the variance of health perception.</td>
<td></td>
</tr>
<tr>
<td>Tanaka50</td>
<td>2005</td>
<td>JCS (Japanese)</td>
<td>Difficulties of life, psychological wellbeing, physical condition, background characteristics, and coping were measured.</td>
<td>0</td>
<td>72 0 0 72/77 (93.5%) Emotion-focused coping associated with worse psychological wellbeing. Confrontative coping negatively associated with tension-anxiety, confusion, and fatigue.</td>
<td></td>
</tr>
<tr>
<td>Mussel52</td>
<td>2004</td>
<td>FQCD</td>
<td>Disease related concerns, psychological and somatic symptoms, coping, health locus of control, and disease were measured.</td>
<td>47</td>
<td>25 0 0 72/89 =90% Psychological variables were stronger predictors than medical variables of disease-related concerns. Problem-focused coping was associated with more intense concerns (p &lt; 0.05) and somatic complaints (p &lt; 0.001).</td>
<td></td>
</tr>
<tr>
<td>Petrak53</td>
<td>2001</td>
<td>FQCD</td>
<td>Disease-specific and generic QOL, coping, and hopelessness were measured in German Crohns/Colitis Association.</td>
<td>619</td>
<td>649 0 0 44.10% Active coping negatively associated with generic physical QOL during relapse, but not remission. Depressive coping negatively associated with physical and mental QOL dimensions.</td>
<td></td>
</tr>
<tr>
<td>Drossman55</td>
<td>2000</td>
<td>CSQ and WCQ</td>
<td>This study examined the effect of different coping strategies on the health outcome of women with GI disorders.</td>
<td>37</td>
<td>12 0 125 (66 functional and 59 organic disorders) 72.80% Problem-focused used more than emotion-focused coping. Catastrophising associated with less control over symptoms. Problem-solving associated with poorer health when symptoms worsened. CSQ a better predictor than WCQ.</td>
<td></td>
</tr>
<tr>
<td>Seres56</td>
<td>2008</td>
<td>CSQ</td>
<td>QOL, pain, psychiatric symptoms and coping strategies measured.</td>
<td>0</td>
<td>66 0 88 IBS 84% Catastrophisation explained more QOL variance in IBS patients (15%) than IBD patients (3%), Depression positively associated with catastrophising and negatively associated</td>
<td></td>
</tr>
<tr>
<td>Rhodes70</td>
<td>2007</td>
<td>CSQ</td>
<td>Coping skills, social support, negative social interactions, anxiety and depression were measured.</td>
<td>24</td>
<td>15 0 5% Crohn's colitis N/A</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>Year</td>
<td>Study Type</td>
<td>Variables measured</td>
<td>Sample Size</td>
<td>N/A</td>
<td>Notes</td>
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<tr>
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</tr>
<tr>
<td>Turnbull</td>
<td>1995</td>
<td>RSCS</td>
<td>Disease activity, coping, and QOL were measured</td>
<td>16</td>
<td>6</td>
<td>0 0 N/A</td>
</tr>
<tr>
<td>Vallis</td>
<td>2004</td>
<td>CRI</td>
<td>QOL, coping, social support, life stress, perceived medical symptoms and life history factors</td>
<td>32</td>
<td>0</td>
<td>17 0 N/A</td>
</tr>
<tr>
<td>Alberts</td>
<td>1988</td>
<td>MBHI</td>
<td>Coping, demographics, disease-related variables, treatment, lifestyle, and interpersonal variables were measured</td>
<td>0</td>
<td>38</td>
<td>0 0 38/45(85%)</td>
</tr>
<tr>
<td>Crane</td>
<td>2004</td>
<td>VPMI</td>
<td>Symptoms, anxiety and depression, parental responses to cold-related illness, and coping were measured</td>
<td>17</td>
<td>16</td>
<td>0 25 IBS N/A</td>
</tr>
<tr>
<td>Tanaka</td>
<td>2009</td>
<td>N/A</td>
<td>A questionnaire of six coping strategies for worsening CD created based on a semi-structured interview</td>
<td>76</td>
<td>0</td>
<td>0 0 89.4%</td>
</tr>
<tr>
<td>Hall</td>
<td>2005</td>
<td>N/A</td>
<td>Qualitative data from 15 individual interviews and 3 focus groups were obtained</td>
<td>14</td>
<td>17</td>
<td>0 0 75.90%</td>
</tr>
<tr>
<td>Fletcher</td>
<td>2008</td>
<td>N/A</td>
<td>8 females with IBD and/or IBS completed a background questionnaire, an e-mail interview, and a face-to-face interview.</td>
<td>0</td>
<td>3</td>
<td>0 6 IBS (one of whom had UC + IBS) N/A</td>
</tr>
<tr>
<td>Lix</td>
<td>2008</td>
<td>CSQ</td>
<td>2 year and 5 measurements of disease activity, QOL, well-being, social support, pain and health anxiety, perceived stress, distress, mastery and pain catastrophising.</td>
<td>187</td>
<td>169</td>
<td>0 18 indeterminate colitis and 14 unconfirmed IBD 69% (8.8% dropped out in the latter stages)</td>
</tr>
<tr>
<td>Purc-Stephenson</td>
<td>2009</td>
<td>Brief Cope</td>
<td>Longitudinal. 2 measurements over 6 months: psychological factors, demographics, health characteristics, and coping measured.</td>
<td>251</td>
<td>109</td>
<td>0 214 individuals diagnosed with arthritis 53.7% of time 1 responded at time 2.</td>
</tr>
</tbody>
</table>

How IBD patients cope with IBD: a systematic review.
<table>
<thead>
<tr>
<th>First author(s) and reference</th>
<th>Year</th>
<th>Coping instrument</th>
<th>Research methods</th>
<th>Participants</th>
<th>Research outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IBD cases</td>
<td>Controls</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>CD</td>
<td>UC</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Healthy</td>
<td>Other disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Response rate</td>
<td>Outcome</td>
</tr>
<tr>
<td>Timmer73</td>
<td>2011</td>
<td>Various</td>
<td>Meta-analysis of IBD interventional studies; coping an outcome variable in 1 adult and 2 adolescent studies for psychotherapy and 3 adult studies for educational interventions</td>
<td>Psychotherapy studies had 50 CD adults and 69 IBD adolescents. Psychoeducational studies had 85 patients for the long term results (73 CD, 12 UC), and 204 for short term assessment (102 CD, 56 UC, 36 unspecified IBD)</td>
<td>N/A One adult study revealed no effect of psychotherapy at 6 months follow up and an insignificant effect at 12 months. Psychotherapy improved adolescent coping at 3 to 8 months follow up. No such findings for educational interventions.</td>
</tr>
</tbody>
</table>

Abbreviations of scales: WOC = Ways of Coping; WCC = Ways of Coping Checklist; WCQ = Ways of Coping Questionnaire; COPE = Coping Operations Preference Enquiry; CSIb = Coping Strategies Indicator; JCS = Jalowiec Coping Scale; FQCD = Freiberg Questionnaire on Coping with Disease; CSQ = Coping Strategies Questionnaire; RSCS = Rosenbaum Self-Control Schedule; CRI = Coping Responses inventory; MBHI = Millon Behavioral Health Inventory; VPMI = Vanderbilt Pain Management Inventory.

Other abbreviations: QOL = Quality of Life; IBD = Inflammatory Bowel Disease; GI = Gastrointestinal; CD = Crohn's disease; IBS = Irritable Bowel Syndrome; UC = ulcerative colitis; N/A = Not Applicable.
3.4. Adult studies

All twenty-six studies about adults exclusively were cross-sectional while one study of adults and adolescents was longitudinal and a meta-analysis looked at coping before and after therapy.

3.4.1. IBD versus controls

Coping strategies vary between IBD patients and controls. A large Canadian study found that IBD patients (a) used avoidant coping significantly more often than controls, (b) used active coping slightly more often, and (c) had more of the variance in their health perception explained by coping than the general population (33% versus 7%). In a smaller study, 26 CD, 22 UC, 27 irritable bowel syndrome (IBS) and 21 healthy controls were compared. Those IBD and IBS patients found to have poor psychological affect used more emotion-focused coping than healthy subjects. Interestingly, “well-adjusted” patients had similar psychological affect as controls but problem-focused coping did not differ significantly between poorly adjusted IBD patients and controls. Therefore, emotion focused coping was a stronger negative predictor of psychological outcomes than problem-focused coping.

3.4.2. Emotion- versus problem-focused coping

Studies have shown that emotion-focused coping is a more accurate predictor of psychological outcomes than problem-focused coping: a study of 150 IBD patients found that emotion- but not problem-focused coping was associated with depression. Smaller studies also support this finding: emotion-focused coping has been negatively associated with QOL and perceived health, wellbeing and functioning. Lastly, a web-based study of 259 IBD patients found that self-blame led to more avoidant coping, which was associated with poor adjustment.

3.4.3. Coping and recovery after surgery

Coping may influence recovery from surgery. One study measured coping strategies of 83 IBD patients at the time of surgery: maladaptive coping, which was defined by Moskovitz et al. as “escape, accepting responsibility, and self-control”, was associated with worse QOL several months post-surgery. However, adaptive coping, defined as “problem solving, positive reappraisal, and seeking support”, did not relate significantly to post-surgical QOL.

3.4.4. UC versus CD

Two studies which used the JCS suggest that UC and CD patients cope similarly. A large study of 496 UC and 246 CD patients reported that the coping strategies of these patients did not differ and a slightly smaller study also found the same. However, one study (which used the WCQ) found that CD patients used more problem- and emotion-focused coping strategies than UC patients.

3.4.5. Disease activity and severity

Disease activity may alter the coping strategies of IBD patients: an online study and a large Canadian study found avoidant coping to be associated with worse disease and disease relapse, respectively. Another study found poorly functioning CD patients had worse disease and were more likely to cope using emotional discharge and social support seeking than normally functioning CD patients and controls. Meanwhile, a study of 72 IBD patients found problem-focused coping to be linked with more somatic complaints.

Conversely, a large study found no differences in coping between those in remission and relapse although, as one might expect, patients in remission had better QOL, and less anxiety and depression than those in relapse. Another study found that coping methods were not significantly related to disease activity, although the positive relationship between disease activity and emotion-focused coping approached significance.

The effect of coping strategies on psychological outcomes may also vary between relapse and remission, although it is unclear whether emotion-or problem-focused coping are detrimental during flares of disease: emotion-focused coping was shown to be detrimental when disease was more severe in one study, while a study of 1322 IBD patients found active coping to be adverse in times of disease flare but not in times of disease remission.

3.4.6. Depressive coping and catastrophising

Depressive coping explained a significant amount of variance of psychological wellbeing in two studies. One study of 1322 IBD patients found that 43% of the mental component of QOL was explained by depressive coping, hopelessness, and disease activity, with depressive coping explaining 16% of the variance. Another study found that depressive coping (23%) was a better predictor of disease-related concerns than demographic (10%) and disease variables (7%).

Catastrophising also determines psychological outcomes. A study of 174 women with GI disorders found that catastrophising was associated with feeling less in control over symptoms and with the inability to decrease symptoms. A smaller study also demonstrated significant associations between anxiety and depression, and catastrophising, although another study of 66 UC and 88 IBS patients found that catastrophisation was a significant predictor of poor QOL in IBS, but not UC.

3.4.7. Longitudinal studies

Only two non-interventional studies have examined IBD patient coping longitudinally. Firstly, a Canadian study measured pain catastrophising on five occasions over two years in 356 IBD patients. Pain catastrophising increased over the two-year study period, irrespective of whether their disease was constantly active, inactive, or fluctuating. Meanwhile, another longitudinal study measured coping of IBD and arthritis patients using the Brief Cope twice over six months: adaptive coping was used more at both time periods and for both disease groups than maladaptive coping. Furthermore, adaptive coping at baseline was positively associated with posttraumatic growth (PTG) (a measure of how much one positively changes as a result of a significant life challenge, such as IBD) at both baseline and six months. Maladaptive coping was not associated with PTG at either time.
<table>
<thead>
<tr>
<th>First author(s) and reference</th>
<th>Year</th>
<th>Coping instrument(s)</th>
<th>Research methods</th>
<th>Participants</th>
<th>Controls</th>
<th>Response rate</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacPhee64</td>
<td>1998</td>
<td>CHIP and A-COPE</td>
<td>Adolescents and parents were measured in terms of coping, social support, QOL, disease severity, and life events.</td>
<td>12 CD UC 0 0</td>
<td>30/35</td>
<td>Parental coping strategies were larger determiners of QOL of adolescents than the coping of the adolescents.</td>
<td></td>
</tr>
<tr>
<td>Hayutin65</td>
<td>2009</td>
<td>CHIP</td>
<td>Intervventional study: parents’ coping measured pre-treatment, post-treatment, and 6-month follow-up.</td>
<td>4 2 0 0 N/A</td>
<td></td>
<td>Parents “sense of competency and use of adaptive coping strategies” improved at post-treatment and 6 months follow up.</td>
<td></td>
</tr>
<tr>
<td>Raffle57</td>
<td>2009</td>
<td>PPCI</td>
<td>Demographics, diagnosis, pain, coping, depression, anxiety, QOL, healthcare attitudes, and functional limitations were measured.</td>
<td>109 28 0 0</td>
<td></td>
<td>IBD adolescents used catastrophising and helplessness for coping with pain, which was associated with more depression, anxiety, lower QOL, and greater pain levels.</td>
<td></td>
</tr>
<tr>
<td>Mackner and Crandall72</td>
<td>2005</td>
<td>CSIa</td>
<td>Behaviour problems, social competence, depression, anxiety, self-esteem, and coping were measured.</td>
<td>38 4 42 8 56%</td>
<td>IBD N/A</td>
<td>None of the coping strategies of IBD patients and controls differed significantly.</td>
<td></td>
</tr>
<tr>
<td>Mackner and Crandall54</td>
<td>2005</td>
<td>CSIa</td>
<td>Medication adherence, emotional and behavioural problems, family functioning, and demographics were measured.</td>
<td>38 4 0 8 56%</td>
<td>IBD N/A</td>
<td>Children who coped via wishful thinking were less adherent to their medication regimen; the authors noted that adherence should be monitored in adolescents who adopt wishful thinking.</td>
<td></td>
</tr>
<tr>
<td>Thomsen27</td>
<td>2002</td>
<td>RSQ-Child</td>
<td>Adolescents and parents participated: abdominal pain, emotional and behavioural problems, and coping were measured.</td>
<td>9 2 0 48 other organic diagnoses and 92 functional diagnoses</td>
<td>N/A N/A</td>
<td>Primary CE and secondary CE coping associated with better outcomes. Secondary CE associated with less pain. Involuntary engagement and disengagement associated with more somatic complaints, anxiety and depression.</td>
<td></td>
</tr>
<tr>
<td>First author(s) and reference</td>
<td>Year</td>
<td>Coping instrument(s)</td>
<td>Research methods</td>
<td>Participants</td>
<td>Controls</td>
<td>Response rate</td>
<td>Outcome</td>
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</tr>
<tr>
<td>van der Zaag-Loonen$^{59}$</td>
<td>2004</td>
<td>UCL-A and CCSS-c</td>
<td>Three coping instruments were administered to 65 adolescents (12–18 years old) with IBD.</td>
<td>34</td>
<td>31</td>
<td>660</td>
<td>0</td>
</tr>
<tr>
<td>Xanthopoulos$^{24}$</td>
<td>2006</td>
<td>RSQ-Child / Parent-IBD</td>
<td>Demographics, medications, child coping, parents perceptions of child’s coping, anxiety and depression, hassles, and cortisol were measured.</td>
<td>41</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Calsbeek$^{58}$</td>
<td>2006</td>
<td>CISS-21</td>
<td>Measures included physical complaints, anxiety, depression, disability, medical variables, diet adherence and toilet use.</td>
<td>190 (non-specified)</td>
<td>274</td>
<td>331 (other diseases)</td>
<td>50.3% (disease) and 49% (controls).</td>
</tr>
<tr>
<td>Gitlin$^{13}$</td>
<td>1991</td>
<td>Coping inventory</td>
<td>Coping styles, stressful life events, psycho physiological reactivity were measured.</td>
<td>39 IBD children and 22 of their parents</td>
<td>43</td>
<td>0</td>
<td>82/84 children and 53/84 parents</td>
</tr>
<tr>
<td>Nicholas$^{69}$</td>
<td>2007</td>
<td>N/A</td>
<td>Participants were interviewed about the impact of IBD on their everyday lives</td>
<td>61</td>
<td>19</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(continued on next page)</td>
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</tbody>
</table>
3.4.8. IBS versus IBD
The relationship between coping and psychological outcomes may differ between IBD and IBS. One study reported that psychological adjustment and problem-focused coping were associated with "adapted protective autonomic nervous system activity" in IBD, but not IBS patients.59 Another study involving 25 IBS and 33 IBD patients found passive coping to be associated with higher depression and anxiety in IBS but only with depression in IBD.61 IBS patients have also been shown to catastrophise more than UC patients, and that catastrophisation was the greatest predictor of QOL in IBS but not IBD.56 Conversely, other studies found no difference in the coping strategies of IBD and IBS patients,37 or other GI disease groups55,58.

3.4.9. Direct comparison of coping instruments
Despite the wide variety of instruments on offer, only one study directly compared coping instruments and found that CSQ was a better predictor of outcome than WCQ,55 albeit in a mixed disease sample.

A Japanese study examined the coping strategies adopted by 76 CD patients in remission when they knew their CD was worsening: altering the contents of meals was most commonly reported and seeing a doctor immediately was the least common strategy. A qualitative study of 31 patients with severe IBD loosely divided coping strategies into psychological, behavioural, social, and biomedical.66 Lastly, a small study of eight young women with IBD or IBS found "(1) dietary alterations, (2) support, (3) controlling the situation and surroundings/planning, (4) attitude, (5) relaxation techniques, (6) distraction/ignoring the problem, and (7) education/knowledge" were used.68

3.5. Children and adolescents
Ten observational studies examined the coping strategies of IBD adolescents or children,13,24,27,54,57-59,64,69,72 while one meta-analysis73 and one small study45 examined coping in the context of psychological interventions.

3.5.1. IBD versus controls
Whether IBD adolescents cope differently than controls is unclear. The largest study of coping involving IBD adolescents included 521 adolescents with GI disease and 271 healthy controls: no differences in coping were found between those with disease and healthy controls.58 Similarly, a study which compared 50 adolescents with IBD to 42 controls found no differences between IBD children and controls.72 In contrast, a study which compared 65 IBD patients with normative data from 660 controls found that IBD patients used avoidant coping styles more than controls,59 which is consistent with larger adult studies.25

3.5.2. Effect of coping on outcomes
Coping appears to influence the psychological outcomes of adolescents with IBD. A study of forty-one adolescent CD patients found that involuntary engagement and involuntary disengagement coping (maladaptive and emotion-focused) were associated with more anxiety and depression, while primary control disengagement (avoidance and denial) was associated with more anxiety.24 A study of 174 recurrent abdominal pain (RAP) patients found primary control engagement and secondary control engagement, which
may be considered adaptive emotion-focused strategies, to be associated with less somatic complaints, anxiety, and depression. However, the disease sample was mixed and included few IBD patients. Another study found that adolescents with IBD are more dependent upon catastrophising and helplessness for coping with pain, thus making them more susceptible to depression, anxiety and lower QOL. Lastly, one study found that children who coped via wishful thinking were less adherent to their medication.

3.5.3. Self-reports versus parental reports of coping
Adolescents self-reported coping strategies may or may not differ from those reported by their parents. A study of forty-one adolescent CD patients reported significant differences between adolescent self-reported coping and parent’s reports of their children’s coping strategies on four out of six coping mechanisms. However, a study of 39 IBD children, 43 healthy children and a proportion of their parents found that parents of IBD children reported similarly to their children in terms of coping styles whereas control parents rated their children’s coping as higher than it actually was. Furthermore, parental coping strategies may be as important, or even more important, in determining outcomes for adolescents with IBD: a study of thirty adolescent-parent pairs found that parental coping strategies were stronger predictors of QOL than the coping strategies of the adolescents themselves. This may have implications for psychotherapy, which is discussed below.

3.5.4. Psychological interventions
A small interventional study of six adolescent girls and their parents found that adaptive coping strategies improved from pre-intervention to six-month follow-up in five out of six parents. In addition, this was complemented by improvements in terms of pain and functional disability in five of six of the girls. Targeting the coping of adolescents themselves is also an important interventional strategy: the meta-analysis revealed that coping was significantly improved in adolescents at three-to-eight months follow up in two studies of 69 adolescent patients.

3.5.5. Qualitative study
One study examined coping qualitatively in 80 IBD adolescents; a number of means of coping with IBD were reported, including treating it as a challenge to conquer (i.e. confronting), comparing themselves with others with worse situations, and finding activities they enjoy to take their mind off IBD (i.e. distraction). Furthermore, adolescents reported that their coping was enhanced by the support they received from family members and friends, although some adolescents experienced complications in their relationships with their parents; some adolescents felt that their parents worry about them too much, were too intrusive, and did not understand the illness properly.

4. Discussion
After systematically reviewing all studies of coping in IBD, we conclude that emotion-focused coping has generally shown a negative association with psychological wellbeing, while the link between problem-focused coping and psychological outcomes is weakly positive.

Most studies report that coping is associated with specific psychological outcomes, with a stronger negative effect for emotion-focused than problem-focused coping. Among adults, IBD patients use coping more than controls, especially emotion-focused strategies.

Coping strategies may predict recovery from surgery. Disease severity and status may alter coping strategies of patients and it appears that coping strategies may vary with relapse and remission; avoidance coping is more common among those with in relapse and with more severe disease.

Only one study directly compared coping instruments and found CSQ to be a better predictor of outcome than WCQ. Few studies have examined the impact of psychological or educational interventions on coping, although it would seem from the data available that such interventions have no effect on disease course and little effect on psychological outcomes. Qualitative studies have demonstrated that diet alteration is common practice in adult IBD patients.

Of the two longitudinal studies, one found catastrophising to worsen with time, irrespective of disease status stability. Perhaps when disease progresses, pain becomes a more prominent feature, and maladaptive coping increases. Catastrophising is an important predictor of psychological outcomes, and provides a promising psychotherapeutic target. The other study reported that coping is stable over six months, although internet recruitment and poor response rate at six month follow up (53.7%) were significant limitations.

Among children and adolescents, the evidence for coping styles of IBD children differing from controls is somewhat equivocal. There seems to be a weak association between coping and outcomes, including psychological wellbeing and medication compliance. Parental coping strategies appear to be important in terms of predicting outcomes. Psychological interventions may be more useful for children than for adults. Lastly, a qualitative study revealed a range of adopted strategies for coping with IBD, including confronting, social comparison, and distraction.

4.1. Limitations
Variability in research design and coping instruments used has led to inconsistency in the IBD-coping literature. Only one study has directly compared coping instruments in IBD patients and there is no IBD-specific coping instrument available. The consistency and predictive power of coping instruments may be improved when a disease-specific approach is undertaken.

IBD-coping studies have other significant limitations: small-to-modest sample sizes, low response rates, low response rates, and questionable generalizability of many cohorts (e.g. hospital-based, absence of lower educated patients, single gender, etc.). The most significant limitation, however, is that only two studies have examined coping longitudinally. Longitudinal studies are needed to (a) effectively control for reverse causation, and (b) ascertain whether coping strategies are stable over time or change over time or situations. They will also make it possible to study which coping strategies are adaptive at which times (e.g., relapse versus remission).
4.2. Future directions

The best model of coping will be determined by future longitudinal and interventional studies. Broadly speaking, there are two models that may explain the relationships between coping, disease severity, and psychological distress. Firstly, worse disease may lead to psychological distress and maladaptive coping independently. Second, disease severity may not independently predict psychological outcome as coping moderates this relationship. For example, a person with IBD who uses relaxation techniques during an active flare of their disease may experience less psychological distress. If the second model is true, then psychological interventions targeting coping behaviours may be effective.

According to CSM (see Fig. 1), how one perceives their illness will have an impact on which coping strategies they will adopt.21 For example, perceived controllability may explain the relationship between disease activity and coping: IBD in remission is perceived as more controllable than IBD during a flare,25 and controllable situations favour problem-focused coping whereas less changeable situations favour emotion-focused coping.40,74,75 There is evidence that those with more active disease tend to adopt more emotion-focused coping.25,26 Other chronic illness populations have demonstrated that increased perceived control over the illness leads to increased problem-focused coping76,77 whilst perceived uncontrollability leads to emotion-focused coping.77,78

Problem-focused coping may be less beneficial or even maladaptive in times of disease flare.53,55 For example, a person who attempts to “cure” their IBD with an alternative medicine or special diet may fail to improve their disease and become frustrated, hopeless, and depressed. Therefore, in contrast to the traditional Western view that problem-focused coping is superior,12 flexibility of coping may be more adaptive. This has implications for interventional strategies.

Coping efficacy training (CET), which encourages emotion-focused coping for uncontrollable stressors and problem-focused coping for controllable stressors,14 has had some success, including in HIV79,80 and spinal cord injuries (SCI)81 (see Fig. 2) but has not been tested in IBD patients.

Despite the lack of evidence that psychotherapy improves IBD outcomes it may improve with more individualised treatment. For example, those with more severe (i.e., less controllable) disease may benefit more from emotion-focused techniques while those with less severe disease may benefit more from problem-focused strategies. Those with comorbid IBD and IBS may benefit more from psychotherapy because of the stronger psychosomatic underpinning of IBS.56,82 Targeting parental coping strategies may improve outcomes for adolescents with IBD (the coping strategies of the parents predict patient QOL64).

5. Conclusions

Future research needs to focus on which strategies are most effective at reducing distress in the IBD patient. Cross-sectional studies are unlikely to be helpful except when directly comparing coping instruments in terms of predictive capability. More longitudinal and interventional studies are needed, along with an IBD-specific coping instrument. If there is a clinically significant relationship between coping and psychological outcomes, it would be expected that increasing adaptive coping behaviours and decreasing maladaptive coping behaviours will lead to tangible and cost-effective improvements in IBD patient outcomes. As the holistic approach to the management of the IBD patient evolves, the elucidation of the role of coping strategies will become more important.

Acknowledgements

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