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Short communication

## Predicting patient reassurance after colonoscopy: The role of illness beliefs

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## ABSTRACT

**Objective:** Failure to effectively reassure patients can lead to patients becoming distressed and seeking further medical care. Whilst existing studies have identified that patients' psychological and demographic characteristics can impact patient reassurance, little research has explored specific predictors of patient reassurance following a colonoscopy. This study investigates demographic and psychological predictors of patient reassurance after receiving normal test results following a colonoscopy.

**Methods:** Eighty-five participants receiving colonoscopies due to gastrointestinal symptoms were recruited from two endoscopy clinics. Patients provided demographic information and completed questionnaires assessing illness perceptions, health-related anxiety, hypochondriasis, somatisation and state and trait anxiety prior to the colonoscopy, as well as reassurance the day after the colonoscopy. Seventy-three participants provided complete data and were included in the analyses. Pearson's correlations and hierarchical linear regression were conducted to examine the associations between the baseline variables and patient reassurance after the colonoscopy.

**Results:** Health-related anxiety, hypochondriasis and four items from the Brief Illness Perceptions Questionnaire (consequence, identity, concern, and emotional response beliefs) were negatively correlated with reassurance ( $r$ 's ranged from  $-0.28$  to  $-0.54$ ,  $P < .05$ ). The hierarchical linear regression demonstrated that in the fully adjusted model, only consequence beliefs (i.e. negative beliefs regarding the impact of gastrointestinal symptoms) remained a robust predictor of reassurance ( $\beta = -0.56$ ,  $P = .005$ ).

**Conclusion:** This study extends existing research on patient reassurance and is the first study to demonstrate that illness beliefs predicted reassurance following a colonoscopy. These findings suggest that targeting consequence beliefs may be a useful intervention for improving patient reassurance following clinical investigations.

## 1. Introduction

Attempting to reassure patients occurs in 70% of primary care consultations, but often fails, resulting in adverse consequences for the patient and healthcare system [1,2]. Reassurance involves the physician relieving a patient's anxiety through non-verbal or verbal mechanisms including explaining symptoms, addressing concerns, and displaying empathy [1,3]. Successful reassurance reduces patients' anxiety and health-related concerns, prevents unnecessary medical visits, and leads to a better understanding of the diagnosis [3,4].

Diagnostic testing is undertaken to reassure patients, however there are mixed results on the efficacy of reducing patients' anxiety after receiving normal test results [5–8]. A systematic review assessing the efficacy of diagnostic testing (e.g. ECG, MRI, radiography, and laboratory tests) across patients with symptoms including chest pain,

musculoskeletal pain, headaches, fatigue and abdominal pain, identified one randomized trial that improved reassurance, and this was only sustained to three months [9]. Similar results are evident in more invasive tests, including colonoscopy (a widely used procedure where a flexible endoscope is inserted into the rectum and passed to the terminal ileum – the end of the small bowel - to inspect the colon for abnormalities, determine a diagnosis and treatment options, and rule out serious disease) [10,11]. Although results are usually normal, symptoms and patient concerns may persist [11,12]. Many patients with functional gastrointestinal symptoms misunderstand their symptoms and fear serious disease including colorectal cancer [13]. Patients may also seek further investigations to resolve concerns about the seriousness of their illness, not because of symptom severity or frequency [11].

Research has identified that patient cognitions and beliefs predict patient reassurance across various clinical settings [2,12,14]. In cardiac

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patients, heightened anxiety and negative illness beliefs were associated with reduced patient reassurance [14]. Somatisation, heightened anxiety and hypochondriasis have also been associated with lower patient reassurance [12,15,16]. Furthermore, certain patient demographics (e.g. educational attainment) impact patient reassurance [17]. This study investigated which psychological and demographic factors predict patient reassurance after receiving normal test results following a colonoscopy. We focused on colonoscopies due to their frequent use and the scarce literature in this area.

## 2. Method

### 2.1. Participants and procedure

This was a prospective cohort study with two assessment points (prior and post-colonoscopy). Ethics approval was received from the regional ethics committee. Participants ( $N = 85$ ) were recruited from two endoscopy clinics in Auckland, New Zealand, referred for functional gastrointestinal symptoms (e.g. bloating and symptoms suggestive of irritable bowel syndrome). Inclusion criteria consisted of patients aged  $> 18$  years with non-severe gastrointestinal symptoms and normal colonoscopy test results. Colonoscopies were performed by one consultant (AF).

Participants provided demographic information and completed self-report questionnaires in the waiting room prior to the colonoscopy. The normal result was communicated in a brief interview immediately after the procedure by the same consultant. Participants received a written report confirming normal results. A reassurance questionnaire was completed the day following the colonoscopy after participants received normal results. Seventy-three participants provided complete data and constituted our analytic sample.

### 2.2. Measures

Illness perceptions were assessed using the nine-item Brief Illness Perceptions Questionnaire, [18]. Items were re-worded to reflect responses to gastrointestinal symptoms, as suggested by the authors. The B-IPQ has appropriate test-retest reliability and discriminant validity [19].

The Health Anxiety Inventory is an 18-item scale that assesses health-related anxiety and concerns [20]. The inventory has appropriate test-retest reliability and criterion validity [20].

Hypochondriasis was assessed using the 14-item Illness Behaviour Questionnaire (IBQ) [21]. This scale has appropriate discriminant validity and concurrent validity [22].

Somatosensory Amplification Scale is a 10-item questionnaire that assesses hypervigilance to somatic symptoms and sensations [23]. This scale has appropriate test-retest reliability and internal consistency [23].

State-Trait Anxiety Inventory assesses state and trait anxiety on two 20-item subscales [24]. The STAI has appropriate test-retest reliability and internal consistency [25].

Reassurance was measured using a five-item reassurance scale, with acceptable internal consistency (Cronbach's  $\alpha = 0.80$ ) [14,26]. Items include: "how reassured were you by the test results", "how accurate do you believe the test was for detecting serious diseases", "how worried are you about your health now", "to what extent do you still believe that there is something seriously wrong with you", and "to what extent do you think additional tests are needed to find the cause of your symptoms."

### 2.3. Covariates

In addition to demographic characteristics (age, gender, ethnicity, employment status, educational attainment and marital status) participants reported previous endoscopies (gastroscopy or colonoscopy)

and relevant gastro-intestinal symptoms.

## 2.4. Analyses

Pearson's correlation coefficients (for continuous variables) and independent samples  $t$ -tests (for binary variables) were computed to examine the relationship between demographic and psychological variables and reassurance. The significant variables ( $P < .05$ ) were included in a hierarchical linear regression analysis predicting reassurance. Analyses were conducted using SPSS.

## 3. Results

The analytic sample consisted of 44 females and 29 males, with a mean age of  $51.4 \pm 14.27$ . Fifty-nine (80.8%) identified as New Zealand European, 57 (78.1%) were married, 46 (63%) completed tertiary education and 54 (74%) were employed. There were no differences ( $P$  values  $> .05$ ) across demographic or psychological factors between the analytic ( $N = 73$ ) and full sample ( $N = 85$ ).

From the demographic variables, only older age was positively associated with reassurance ( $r = 0.21$ ) and whether the participant had a previous gastroscopy ( $P < .05$ ). Participants who had not had a previous gastroscopy demonstrated significantly higher reassurance ( $P = .03$ ), a result not evident for colonoscopies ( $P = .46$ ).

For psychological characteristics (Table 1), higher health-related anxiety and hypochondriasis were negatively correlated with reassurance ( $P$ -values  $< .05$ ). Additionally, four items from B-IPQ were negatively correlated with reassurance ( $P$ -values  $< .05$ ): consequence beliefs (impact of symptoms on the patient's life), identity beliefs (severity of symptoms), concern beliefs (extent of concern about symptoms) and emotional response beliefs (the extent symptoms affect the patient emotionally).

In the hierarchical linear regression (Table 2) we sequentially adjusted for age, sex, previous endoscopy (Model 1); health anxiety and hypochondriasis (Model 2); consequence beliefs, identity beliefs, concern beliefs and emotional response beliefs (Model 3). In Model 1 older age ( $\beta = 0.27$ ,  $P = .03$ ) and not having had a previous gastroscopy ( $\beta = 0.34$ ,  $P = .009$ ) predicted higher reassurance, explaining 16% of the variance in reassurance. After adjusting for health anxiety and hypochondriasis in Model 2, not having had a previous gastroscopy ( $\beta = 0.34$ ,  $P = .008$ ) remained a significant predictor of reassurance, with the model explaining 23% of the variance in reassurance. In the fully adjusted model (Model 3) we also adjusted for illness beliefs. Only consequence beliefs predicted reassurance ( $\beta = -0.56$ ,  $P = .005$ ), explaining 36% of the variance in reassurance. Findings indicated that negative beliefs regarding the impact of gastrointestinal symptoms were associated with lower reassurance post-colonoscopy.

**Table 1**  
Correlations between baseline variables and reassurance (Pearson's  $r$ ).

Baseline variables	Reassurance
Health anxiety (31)	<b>-0.28</b> ( $P = .02$ )
State-trait anxiety (STAI)	0.16 ( $P = .18$ )
Somatic symptoms (SAS)	-0.22 ( $P = .06$ )
Hypochondriasis (IBQ)	<b>-0.32</b> ( $P = .007$ )
Illness beliefs (B-IPQ)	
Consequence beliefs	<b>-0.54</b> ( $P < .001$ )
Timeline beliefs	-0.20 ( $P = .09$ )
Personal control	-0.10 ( $P = .42$ )
Treatment control	0.05 ( $P = .70$ )
Identity	<b>-0.33</b> ( $P = .006$ )
Concern	<b>-0.30</b> ( $P = .01$ )
Understanding	0.01 ( $P = .93$ )
Emotional response	<b>-0.29</b> ( $P = .02$ )

The bold values are significant at  $P < .05$ .

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