

1 Communication practices for delivering health behaviour
2 change conversations in primary care: A systematic review
3 and thematic synthesis

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45 **Abstract**

46 Background

47 Clinical guidelines exhort clinicians to encourage patients to improve their health behaviours.
48 However, most offer little support on how to have these conversations in practice. Clinicians fear that
49 health behaviour change talk will create interactional difficulties and discomfort for both clinician and
50 patient. This review aims to identify how healthcare professionals can best communicate with patients
51 about health behaviour change (HBC).

52

53 Methods

54 We included studies which used conversation analysis or discourse analysis to study recorded
55 interactions between healthcare professionals and patients. We followed an aggregative thematic
56 synthesis approach. This involved line-by-line coding of the results and discussion sections of included
57 studies, and the inductive development and hierarchical grouping of descriptive themes. Top-level
58 themes were organised to reflect their conversational positioning.

59

60 Results

61 Of the 17,562 studies identified through systematic searching, ten papers were included. Analysis
62 resulted in 10 top-level descriptive themes grouped into three domains: initiating; carrying out; and
63 closing health behaviour change talk. Of three methods of initiation, two facilitated further discussion,
64 and one was associated with outright resistance. Of two methods of conducting behaviour change
65 talk, one was associated with only minimal patient responses. One way of closing was identified, and
66 patients did not seem to respond to this positively. Results demonstrated a series of specific
67 conversational practices which clinicians use when talking about HBC, and how patients respond to
68 these. Our results largely complemented clinical guidelines, providing further detail on how they can
69 best be delivered in practice. However, one recommended practice - linking a patient's health
70 concerns and their health behaviours - was shown to receive variable responses and to often generate
71 resistance displays.

72 Conclusions

73 Health behaviour change talk is smoothly initiated, conducted, and terminated by clinicians and this
74 rarely causes interactional difficulty. However, initiating conversations by linking a person's current
75 health concern with their health behaviour can lead to resistance to advice, while other strategies
76 such as capitalising on patient initiated discussions, or collaborating through question-answer
77 sequences, may be well received.

78

79 Key words

80 Primary care; behaviour change; health behaviours; general practice; communication skills; doctor-
81 patient communication; healthcare delivery

82

83 **Background:**

84 Health behaviours such as excessive alcohol consumption, lack of physical activity, and smoking are
85 a major cause of morbidity and chronic disease. Clinical guidelines exhort clinicians to encourage
86 patients to improve their health behaviours in order to reduce the incidence of associated diseases
87 [3-7]. Whilst these guidelines provide detailed advice on treatment options, most offer little support
88 on how to have these conversations in practice. NICE guidelines on weight management, for example,
89 state that clinicians should “Raise the issue of weight loss in a respectful and non-judgmental way”
90 [6] but do not detail how this is best achieved.

91 Clinicians have reported reluctance to talk about health behaviours with patients, and oriented to a
92 lack of support from guidelines. They report a number of barriers, including concern that talking
93 about health behaviours could cause offence [8, 9], and a lack of knowledge about how to carry out
94 these conversations in ways which are likely to be well received. Clinicians want more support
95 regarding how to talk about health behaviour change with patients[9].

96 Patients have also reported issues discussing their health behaviours with their physicians in
97 consultations. For example, patients have found particular ways their clinician discussed health
98 behaviours created negative feelings [10, 11]. These studies often used post-consultation interviews
99 with patients to explore their perceptions and experiences of the conversations they had with the
100 clinician during the consultation, they do not analyse the conversations that were actually carried
101 out. Consequently, there are no specific data on the precise type of talk that led to these feelings.

102

103 The fields of conversation analysis and discourse analysis offer relevant research which can
104 address this gap. What we currently know about this aspect of care is derived from after-

105 the-fact reports from patients or clinicians [8, 12], which can be subject to recall or social
106 desirability biases [13]. However, several studies have used more objective methods,
107 exploring consultation recordings. It is now timely for us to synthesise the evidence in this
108 area and, where possible, make recommendations for clinical practice. Conversation and
109 discourse analyses systematically explore recorded consultations allowing empirical
110 observation of how clinicians can successfully negotiate complex conversations and
111 facilitate development of specific recommendations for practice. Conversation analysis
112 involves analysing sequences of interaction [14]. This method looks at what is said, how it is said
113 (including speed, pitch, pauses, and body movement) and what happens next [15]. Researchers
114 examine large numbers of similar types of conversations, for example treatment recommendations,
115 or requests, and identify common patterns in the interactional sequence [16]. This detailed micro-
116 level analysis of interaction enables researchers to understand how communication practices
117 function in everyday life, and which patterns of communication are likely to produce certain
118 responses from conversational partners. These methods allow researchers to qualitatively identify
119 “the techniques and competencies involved in successful and unsuccessful conversation” [17] at a
120 level of detail which cannot be captured through coding frameworks, interviews, or theoretically
121 interpreted studies. These observational methods have been used to inform the training of
122 healthcare professionals to deliver interventions [18], to make practice and policy recommendations
123 [15] and to inform clinical guidelines [19, 20]. These observational methods have been used to
124 inform the training of healthcare professionals to deliver interventions [18], to make practice and
125 policy recommendations [15] and to inform clinical guidelines [19, 20].

126 This review explores health behaviour change talk (HBCT) used by clinicians when communicating
127 with patients in a healthcare setting. We define ‘health behaviour change talk’ as talk designed to
128 change health behaviours. Activities classified as ‘health behaviours’ will be patterns of lifestyle
129 associated behaviour which might impact on patient health (further definitions are provided in figure

130 1). We aim to identify and synthesise evidence from conversation and discourse analytic studies
131 regarding how clinicians communicate with their patients about health behaviour change (HBC), and
132 the responses each practice is likely to generate from patients. We also aim to establish gaps in
133 current evidence, and highlight recommendations for practice, exploring how results from this
134 review articulate with current clinical guidelines.

135 **Methods**

136 We aim to synthesise evidence from conversation and discourse analytic studies of recorded
137 healthcare interactions. Approaches to data analysis in conversation and discourse analysis differ
138 from more conventional qualitative methods. Therefore, we followed established recommendations
139 for reviewing, quality appraising, and synthesising this type of data [21], and our reporting follows
140 ENTREQ guidelines.

141 **Inclusion and Exclusion Criteria:**

142 Studies which met the following criteria were included: naturally occurring talk in interaction; audio
143 or audio-visually recorded interactions; healthcare professional/patient interactions; interactions
144 occurring within a healthcare setting; conversation or discourse analytic methodology; peer-
145 reviewed papers or published book chapters, and behaviour intended to reduce long-term health
146 risk because the behaviour is sustained or repeated over the long-term; e.g., stopping smoking or
147 safer sex practices.

148 We excluded studies which solely used coding frameworks; group interactions; interpreter mediated
149 encounters; encounters that have been translated into English; dissertations; book reviews;
150 conference proceedings, and interactions including proxy decision making. No other exclusions have
151 been placed on the disease, condition, or healthcare domain being studied. No limits were placed on
152 healthcare professionals' roles, patients' reasons for visit, or any patient characteristic.

153 Screening was conducted using Covidence systematic review management software. All titles were
154 screened by a single reviewer (CA), and those which did not meet the inclusion criteria were excluded
155 at this stage. Next, abstracts of remaining titles were screened for eligibility independently by two
156 reviewers (CA and AH, PA, or AS), and conflicts were resolved through discussion, or involvement of
157 third team member (SZ or PA). Full-texts were also independently screened for inclusion by two
158 reviewers (CA and AH, PA, or AS). Our protocol was registered with Prospero: International
159 Prospective Register of Systematic Reviews and is available online. Prospero Protocol ID
160 42016041782.

161 Data Sources:

162 We searched the following databases from database inception to March 2018: MEDLINE
163 (OvidSP)[1946-present]; Embase (OvidSP)[1974-present]; Web of Science Core Collection (Thomson
164 Reuters)[1945-present]; AMED (OvidSP)[1985-present]; CINAHL (EBSCOHost)[1982-present];
165 PsycINFO (OvidSP)[1967-present]; Scopus; Sociological Abstracts (CSA) [1952-present]. We did not
166 limit by date because conversation analysis emerged as a discipline in 1960s, and discourse analysis in
167 the 1950s. Restrictions were applied to specify human subjects and English language. We used two
168 different strategies to capture the variety of reporting in this field. The first search strategy was
169 designed to identify relevant literature which focussed on a specific health behaviour (such as “weight
170 loss”, or “smoking cessation”) – this strategy used free-text terms using the databases' default
171 keyword search. The second was designed to identify literature which may focus on a behaviourally-
172 related action (such as “adherence” or “motivation”), rather than specific behaviour – this strategy
173 used a combination of free-text terms using the databases' default keyword search along with
174 database specific subject headings where available. In addition, we screened bibliographies of
175 included full-texts; specialist online discussion lists; and review team knowledge and contacts. All
176 searches were conducted from January to March 2016. Searches were updated in March 2018. The

177 research strategy was designed with advice from an information specialist (NR). The full search
178 strategy is available in Additional file 1.

179

180 Data Extraction

181 Data extraction was conducted independently by both CA and AH. Data extraction materials used by
182 Parry et al. 2014 [15] were adapted to facilitate extraction of the types of health behaviour discussed,
183 healthcare setting, and implications for practice. Information was extracted regarding study
184 characteristics; the types of talk used by clinicians when discussing HBC; and, where possible, the
185 responses these received from patients.

186 Quality Appraisal and Synthesis

187 We followed existing practices for appraising the quality of studies which use conversation or
188 discourse analysis [21]. The unique features of conversation and discourse analysis, where
189 interactional practices and their consequences are identified and described, mean that traditional
190 methods of quality assessment are not possible. Following Parry and Land [21], we identified the type
191 of data analysis; how many examples were collected; and the depth of analysis used in each study.
192 This appraisal showed that some studies conducted a detailed sequential analysis of a number of
193 similar interactions and offered comprehensive results on conversational practices and their
194 relationship to patients' responses. Others explored conversations in less depth, but nevertheless
195 provided evidence on the presence or absence of particular conversational practices. All studies were
196 included in data synthesis.

197 Synthesis followed an aggregative thematic synthesis approach [22]. This involved line-by-line coding
198 of the results and discussion sections of included studies, and the inductive development of
199 descriptive themes. Similar themes across studies were then grouped hierarchically using the one

200 sheet of paper (OSOP) technique [23], where conversational practices were summarised to produce
201 top-level descriptive themes. This aggregative approach is in line with current practice for
202 synthesising conversation and discourse analytic studies [21]. It ensures results are ‘accumulated’
203 and ‘summarised’, rather than ‘transformed’ [24]. This approach allowed reporting to closely reflect
204 the conversational practices demonstrated in included studies and did not seek to generate new
205 theoretical concepts. Synthesis was conducted by one reviewer (CA) with a second (SZ) providing
206 input on final grouping of descriptive themes. Data were coded and managed using NVivo 11 for Mac.

207 **Results:**

208 **Included studies**

209 Of the 17562 studies identified through systematic searching, ten papers from eight unique
210 observational studies fulfilled the inclusion criteria. Figure 2 illustrates the screening and assessment
211 process. Included studies were conducted in four countries (USA; Canada; Australia; and UK) and in
212 two healthcare settings (primary care, and sexual health clinics). Studies were published between
213 1992 and 2014. The characteristics of included studies are described in Table 1.

214

215 From the eight unique studies included, seven papers, from six studies, were from general practice
216 [25-31] and three papers, from two studies, were from primary care [32-34]. Some papers reported
217 multiple health behaviours, or analysed HBCT from more than one healthcare professional. The
218 behaviours discussed were weight management (5 studies); smoking cessation (3 studies); safer sex
219 practices (2 studies); and lowering alcohol consumption (1 study). Healthcare professionals engaging
220 in HBCT were general practitioners (4 studies); sexual health counsellors (2 studies); dieticians (1
221 study); nurses (1 study); and family health team members (1 study).

222 All studies conducted a sequential analysis of recorded talk. Seven of the eight used a conversation
223 analytic methodology [25-30, 32-34] and one used discourse analysis [31]. Seven were also multi-
224 case analyses [25-30, 32-34], while one was a single-case study [31].

225 Most studies focused on clinician communication behaviours. Only one study focused in detail on
226 patient responses to HBCT [25]; five studies outlined, to varying degrees, typical patient responses
227 to the HBCT which was presented without these analyses being the main focus of the paper [26-29,
228 32-34]; and one explored HBC conversations between one patient and two different healthcare
229 professionals [31]. HBCT which produced patient resistance displays (see box 1) were highlighted by
230 all papers, and in all instances, patient response was used as a measure for the efficacy of HBCT. All
231 studies used audio data, and two used audio-visual data [26, 29].

Figure 2 Prisma Flow Diagram

Table 1 Description of included studies

Authors	Country	Health Behaviour (s)					Participants	Setting	Method	Audio/ video	Corpus size	Recordings used for analysis
		Weight management	Smoking cessation	Promoting lower alcohol consumption	Safer sex advice							
Cohen, D.J. et al. 2011	USA	✓	✓			General practitioner / patient	General Practice	Conversation analysis	Audio	811	541	
Collins, S. et al. 2005	UK	✓				General practitioner / patient	General Practice	Conversation analysis	Audio	168	80	
Freeman, S.H. 1987	USA	✓	✓	✓		General practitioner /patient & nurse/patient	General Practice	Conversation analysis and observational methods	Video	200	200	
Kinnell, A. & Maynard, D. 1996	USA				✓	Counsellor / patient	Primary Care	Conversation analysis & ethnography	Audio	66	25	
Pilnick, A. & Coleman, T. 2003;2010	UK		✓			General practitioner / patient	General Practice	Informed by conversation analytic principles	Video	538	47	
Silverman, D. et al. 1992a; 1992b	USA UK				✓	Counsellor / patient	Primary Care	Conversation analysis	Audio	100	100	
Tapnell, L. 1997	Australia	✓				Dietitian / patient	General Practice	Conversation analysis	Audio	30	30	
Thille, P. et al. 2014	Canada	✓				Family health team member /patient	General Practice	Discourse analysis	Audio	12	12	

1

2 Aggregative Thematic Synthesis

3 Included studies were coded and thematically aggregated. Initial coding produced 102 codes across
4 all 10 included studies, resulting in a total of 14 top-level descriptive themes [24]. Conversational
5 practices which were only described in one study are not reported here. Therefore, we present seven
6 top level themes. To optimise the clinical relevance of the conversational strategies used by
7 clinicians, these themes are presented separately for each stage of the behaviour change discussion
8 [21]. The stages include initiating HBCT; carrying out HBCT, and closing the HBCT. Quotations are
9 presented to illustrate conversational practices, and transcriptions have been adapted to verbatim
10 from the original studies. A description of the frequency of each conversational practice, across
11 studies, is presented in Table 2. Table 3 shows each conversational practice and the response it is
12 likely to receive from patients.

13 1) Initiating HBCT:

14 All studies included in this review documented strategies which are used by clinicians to initiate these
15 conversations. These strategies were: direct questions [25, 30, 33, 34]; linking HBC to a medically
16 relevant concern [25, 27-29, 31]; and patient initiated discussions [26, 27, 32, 34] . The following
17 sections will discuss each of these in detail. One paper used patient responses as a unit of analysis
18 [25], while others used them as proxy measures for the success or failure of clinicians' talk.

19 a) *Direct questions*

20 Health behaviours can be raised as a direct question targeting a specific health behaviour, such as '*do*
21 *you smoke?*'[25], or "*When the two of you engage in any type of sexual activity do you use safe sex?*"
22 [34] . Four studies; two from sexual health clinics [33, 34], and two from primary care [25, 30]

23 reported this practice. One primary care study [25] documented direct questions as the most
24 common way of initiating HBC discussions about smoking cessation.

25 Only one study, from primary care, described patient responses to these direct questions [25]. It
26 outlined a pattern where patients acknowledged the undesirability of their behaviour and provided
27 more information, such as recounting attempts to change behaviours, or giving rationales for not
28 doing so. Clinicians then used information provided by patients to inform subsequent discussion [30,
29 33, 34].

30 *b) Linking to a medically relevant concern*

31 There are opportunities to initiate HBCT when an associated, medically relevant, concern is discussed.
32 Five studies from primary care [25, 27-29, 31] reported that linking health concerns and health
33 behaviours was commonly used to initiate HBCT, and three of these explored this phenomenon in
34 detail [25, 27, 29]. Articulating a link between an existing health concern and a health behaviour may
35 be expected to facilitate HBCT by emphasising its personal relevance for a particular patient.
36 However, this strategy did not always achieve this.

37 Two primary care papers [25, 27] found that this method was unsuccessful when the link was made
38 to a health concern which was not salient for the patient. For example, in one study a clinician
39 explained weight loss would be beneficial, but the patient resisted this advice [27]. However, when
40 the same clinician linked dieting, weight loss, and reduced risk of mortality (associated with the
41 patient's status as a new parent), the patient engaged with and oriented to this as salient (Excerpt 1):

42 *Doc: Okay. Alright. We want to – you know keep you around as long as possible*

43 *Pat: Yes*

44 *Doc: since ...you've got a little one. So.*

45 *Pat: Yeah.*

46 *Doc: I would recommend exercising and really watching your sugars.*

47

48 *Excerpt 1 Cohen et al.*

49

50 Evidence from one paper showed that links to salient concerns were also rejected [27]. In Excerpt 2,
51 following the clinician's link between their smoking and respiratory infection, this patient responds
52 in a louder voice overtly resisting the association, and saying instead it was air conditioners on the
53 bus which caused cold symptoms:

54 *Doc: You still smoking?*

55 *Pat: ((The patient's voice is much louder during this turn)) That's from getting off- ((audible exhale))*
56 *actually being on the bus and they had the air conditioners up up and don't turn them down. I caught*
57 *a cold from there."*

58 *Excerpt 2 Cohen et al. 2011*

59

60 Pilnick and Coleman state that these displays of resistance in response to linking are 'rarely seen in
61 other medical consultations'[25]. Conversely Freeman, states that linking HBC with a well-known
62 illness condition was the most frequent and 'least disruptive' pattern which was observed in her US
63 primary care study [29].

64 Two papers [25, 27] use the data to infer that there are strong moral implications of associating a
65 patient's illness with their behaviours. In doing so this evokes connotations that the patient is
66 responsible and can be blamed for her/his own illness. Patients appeared to be perceiving that
67 clinicians were undermining the legitimacy of a patient's illness and their request for medical
68 assistance. These moral elements may result in the significant displays of resistance seen by Cohen
69 et al, and Pilnick and Coleman in response to linking health behaviours and medically relevant
70 concerns.

71 Rather than linking to *initiate* HBCT, Pilnick and Coleman [25] argue that a general, non-personalised
72 entry into HBCT (e.g. Establishing smoking is a problem), securing agreement on this statement from
73 the patient, and then moving to a more personalised discussion, would be less likely to generate
74 resistance.

75 *c) Patient initiated discussions*

76 HBC discussions were sometimes initiated by a patient, rather than a clinician. Four studies; two from
77 primary care [25, 27] and two from sexual health clinics [32, 34], examined HBCT in this context.
78 Patient initiated HBCT was reported to be rarer than clinician initiated HBCT [25, 33]. Patients were
79 shown to have initiated HBCT either through asking directly for HBC advice, or raising a potentially
80 relevant topic which provided the clinician with an opportunity to move forwards with HBCT (see
81 linking above). The authors hypothesised that, through raising the topic of health behaviours
82 themselves, patients were indicating that they were receptive to behaviour change advice [34].

83 2) Conversational strategies used during HBCT

84 Studies in this review showed that clinicians used two clear strategies for delivering HBCT these were
85 'generalised HBCT' (four studies) and 'personalised HBCT' (six studies). Additionally, five studies
86 outlined strategies that clinicians used to manage patient resistance during HBCT [25, 27, 29, 32, 34].
87 These strategies, and the responses they were likely to receive are explored below.

88 *a) Generalised HBCT*

89 HBCT was sometimes delivered in ways which can be seen to be true for 'patients in general' rather
90 than tailored to a specific person. Four studies; two from primary care [35, 36], and two from
91 specialised sexual health clinics [33, 34], explored how generalised HBCT was given, and the
92 responses these produced from patients. These studies showed that HBCT can be generalised

93 through avoiding tailoring to a specific patient by talking hypothetically[34] [36], or delivering
94 'information' rather than 'advice' [25, 28, 33]. This is exemplified in Excerpt 3:

95

96 Counselor: .hhhh Now when someone er is tested and they
97 have a negative test result .hh it's obviously dealuhm
98 that they then look after themselves to
99 prevent any further risk of

100 Patient: Mm hm

101 Counselor: infection. .hhhh I mean obviously this is only
102 possible up to a point because if .hhh you get into
103 a sort of serious relationship with someone that's
104 long term .hh you can't obviously continue to use
105 condoms forever, .hh Uhm and a point has to come
106 where you make a sort of decision uhm if you
107 are settling down about families and things that you
108 know you'd- not to continue safer sex.

109 *(15 lines omitted)*

110 Now whe- when someone gets a positive test result
111 er: then obviously they're going to ke- think very
112 carefully about things, .hhhh Being HIV positive
113 doesn't necessarily mean that that person is going
114 to develop aids later on.

115

116 *Excerpt 3 Silverman et al., 1992*

117

118 A non-personalised approach was presented as a way to acknowledge the delicacy of HBC
119 discussions. In general this non-personalised format was reported to produce acceptance [35] or
120 minimal acknowledgment from patients. Two studies stated that this talk was largely clinician led

121 [33, 35]. All studies showed that this type of talk mitigated the risk of confrontation, as the health
122 behaviours discussed were not overtly presented as those undertaken by that particular patient. One
123 study concluded that non-personalised HBCT was shorter than personalisation, fitting better with
124 the time constraints of healthcare consultations[33]. However, two studies stated that non-
125 personalised HBCT could also be problematic as, although patients rarely resist, they may not have
126 heard advice as relevant for them [36], or may have rejected HBC [34]. Based on the minimal patient
127 responses this practice often received, one study hypothesised that untailored, unilaterally
128 delivered information may not be adequate in motivating behaviour change [33].

129 *b) Personalised HBCT*

130 The practice of tailoring and personalising HBCT for a specific patient, rather than for 'patients in
131 general', was observed in six studies in this review; four from primary care [25, 28, 30, 31] and two
132 from sexual health clinics [33, 34]. This personalised HCBT consisted of two distinct communication
133 practices. These two practices, and their associated patient responses, are outlined below.

134 *i) Collaborative HBCT*

135 Four studies from primary care [25, 28, 30, 31] and two studies from sexual health clinics [33, 34]
136 examined how HBCT was built collaboratively. This was done through inviting a patient's perspective
137 and accommodating this throughout HBCT by tailoring responses in line with their perspectives
138 (Excerpt 4), or acknowledging HBC, or the degree of HBC, as the patient's choice (Excerpt 5):

139 *Clin: Lite White milk. Have you tried another type of milk?*

140 *Pat: Shape and skim milk*

141 *Clin: What do you think of Shape?*

142 *Pat: Shape's not bad. I don't like the skim milk except the one you*

143 *buy on the shelf, that's nice.*

144 *Clin: Yeah. um um so would you be happy changing to Shape d'ye*

145 *think?*

146 *Pat: yeah, it wouldn't worry me. It's pretty much the same as Lite*

147 *White only a little bit less*

148 *Clin: yeah, t' it does have less fat um and that would, that would*

149 *contribute considerably if you used uh Shape all the time.*

150 *Do you have any problems with that?*

151 *Pat: No not at all.*

152

153 *Excerpt 4 Tapsell, 1997*

154

155

156

157

158

159 *Clinician: And is it two days a week, is that what you think you can maintain, or maybe once a week?*

160 *Or what would be best? .*

161 *Excerpt 5 Thille et al., 2014*

162

163 There was evidence that this was used by clinicians to inform joint decision-making in a consultation.

164 Such sequences usually led to clinicians inviting patients directly to comment on and agree with

165 proposed HB changes that emerged from this joint enterprise, and patients responded with uptake

166 displays. However, Pilnick and Coleman found that, if the patient's opinion was sought and HBCT

167 initiated immediately, without asking further questions and tailoring advice, less uptake, or resistance
168 occurred [25]. Additionally, one study reported that collaborating using a question/answer pattern
169 appeared intrusive [34], although the evidence presented was sparse; and another that it and took
170 longer than other methods [33]. However, although this approach had potential for variability,
171 collaborative HBCT was reported to most often result in displays of uptake from patients, rather than
172 resistance, which likely indicate receptivity to HBC.

173 *ii) Goal setting and assessment*

174 Two studies, one from primary care [31] and one from a sexual health clinic [33], documented goal
175 setting and assessment as components of HBCT. Some goals were clinically oriented, and set or
176 assessed with comparison to guidelines or biomedical recommendations; whilst others were related
177 to self-improvement, or comparison with others [31, 33]. There was no evidence on patients'
178 responses to these goal-setting strategies and no data on which circumstances they could be best
179 used.

180 Thille et al. [31] found that, during goal assessment in a primary care weight loss review, there was
181 potential for disruption if only the desired outcome (e.g. weight loss) was celebrated and emphasised
182 rather than the HBC itself (making dietary changes). The evidence is limited as it is generated from
183 one single case analysis. However, the authors concluded that emphasising personal responsibility
184 for clinical outcomes generated resistance displays.

185 *c) Managing resistance displays*

186 Five studies, three from primary care [25, 27, 29], and two from sexual health clinics [32, 34] explored
187 how clinicians responded to resistance displays. Resistance displays were sometimes minimal
188 responses, no responses, proposition of alternative views, or overt patient rejection of HBCT. Two
189 broad strategies emerged where doctors dealt with resistance displays by either initiating a change
190 in topic, or continuing to pursue HBCT.

191 a. *Pursuing HBCT*

192 Three of the five studies explored how clinicians pursued HBCT when faced with patient resistance
193 displays [25, 33, 34]. Most studies showed that pursuing HBCT following resistance escalated
194 resistance displays. However evidence from two studies showed that if resistance occurred following
195 a link between weight and health, pursuing talk by 'linking to a salient concern'[25, 27] often
196 addressed resistance to the initial link, and allowed for more productive HBCT [25, 27].

197 b. *Initiating a change in topic*

198

199 Two studies from primary care [25, 29] examined what happened when clinicians changed topic in
200 response to resistance displays. Rather than pursuing HBCT, clinicians in these cases avoided
201 addressing displayed resistance, and changed topic to discuss less-delicate matters. This is illustrated
202 in Excerpt 6 where the patient displays resistance to discussion of smoking and the doctor responds
203 by changing the topic to talk about medication. Both studies which examined this topic
204 demonstrated that following this strategy enabled HBCT to be discontinued successfully and the
205 normal business of a consultation resumed with minimal disruption.

206 *Doc: you smoke?*

207 *Pat: yes*

208 *Doc: there's some things you can do these days that*

209 *really help with cutting down... with quitting*

210 *. . . cause that is really something you*

211 *should think about*

212 *Pat: [5 sec silence]*

213 *Doc: well. . . so . . . how're you getting along with*

236 technique expedited closing and did not overtly generate resistance. However, Pilnick and Coleman
237 [26] state that patients oriented to a 'to a lack of success' in providing a HBC solution, and
238 hypothesised that this may be associated with a lack of action to change health behaviours.

239

<i>Table 2 Frequency of conversational practices across included studies</i>								Frequency
	Cohen, D.J. et al.	Collins S. et al.	Freeman, S.H.	Kinnell, A. & Maynard, D.	Pilnick, A. & Coleman, T.	Silverman, D. et al	Tapsell, L.	Thille, P. et al.
Initiating Health Behaviour Change Talk								
Direct questions								4
Linking to a medically relevant concern								5
Non-personalised initiation								1
Patient initiated discussions								4
Conversational strategies used during health behaviour change talk								
Generalised HBCT								4
Personalised HBCT								6
Collaborative health behaviour change talk								6
Goal setting and assessment								2
Managing resistance displays								
Pursuing health behaviour change talk								3
Linking to a salient concern								2
Initiating a change in topic								2
Closing Health behaviour Change talk								
Providing non-specific advice								2

1

2 Discussion

3 Summary of Key findings

4 In ten papers from eight studies, we found that practitioners used a range of strategies to talk about
5 HBC. We grouped these into seven categories, and three domains which indicated their positioning
6 within a consultation. These domains are initiating health behaviour change; carrying out HBCT, and
7 closing HBCT.

8 HBCT was shown to be initiated through ‘direct questions’; ‘linking to a medically relevant concern’;
9 and ‘capitalising on patient-initiated discussions’. There was strong evidence that patient-initiated
10 talk was successful in terms of patient receptivity to HBCT, while HCP linking of health behaviours
11 with health conditions was shown to be a delicate strategy which could generate resistance displays
12 from patients. Two methods were identified for delivering HBCT, once initiated. These were
13 ‘generalised’ and ‘personalised’ HBCT, and there were several ways to implement each of these.
14 ‘Generalised HBCT’ was not overtly presented as personally relevant for patients. Evidence indicated
15 that presenting health behaviour change as ‘information, for people in general’, avoids potential
16 resistance displays. ‘Personalised HBCT’ was tailored for specific patients. It was reported to be well
17 received in general. However, there was some limited evidence that a shared understanding of the
18 relevance of HBC was required before being personalised.

19 We identified two strategies for managing resistance displays; either ‘pursuing HBCT’, or ‘dropping
20 the topic’. In general, pursuit escalated resistance displays, whilst dropping the topic allowed normal
21 business to be successfully resumed. One potentially useful method of pursuit was to link to a salient
22 concern. This showed that, whilst linking may be a risky way to *initiate* health behaviour change talk,

23 it may be a helpful way to address resistance displays if the concern is salient for patients. We
24 identified a clear dearth of evidence on closing HBCT. Only one practice was identified, which was
25 provision of 'non-specific' advice. This was reported to expedite closings, but was shown to be vague,
26 and the authors hypothesised that the minimal responses that were received, a lack of providing an
27 affirmative next step meant that it was unlikely to motivate behaviour change.

28 Strengths and limitations

29 The key strength of this review is the application of systematic review methods to a field to which
30 such methods have been rarely applied. Doing so allowed us to provide the most comprehensive
31 assessment of the evidence on this key public health priority that clinicians struggle with because
32 finding the words is a challenge. We used a systematic search strategy, but many studies were
33 published in social science journals and some of these do not use MeSH terms so it is possible that
34 we have missed relevant studies. We supplemented this with a comprehensive search strategy with
35 a good deal of full text screening and forward and backward citation checking, and consulted experts,
36 suggesting we have identified the key studies. The methods we used were appropriate to capture key
37 studies; identify and aggregate conversational practices across studies, and foreground their clinical
38 relevance.

39 On the other hand, the review had limitations. The chief of these is that we used patient response as
40 a proxy for conversational effectiveness. None of the studies reviewed collected subsequent data
41 on future behaviour change and/or whether the likelihood of change depended upon the preceding
42 consultation. Only one of the included studies used video data, so we were unable to review the role
43 of embodied communication. Another limitation of this review was that the review comprised only
44 ten papers from eight studies. The data available are unlikely to comprise a complete overview of all
45 interactional practices used by clinicians when delivering HBCT, and most of the included studies were
46 from general practice. Furthermore, it is possible that certain conversational practices may be more

47 or less appropriate for different health behaviours or different healthcare settings, but due to a
48 dearth of current literature these could not be identified. These available data highlight that more
49 research is needed to examine how health behaviour change talk is carried out in practice. Some
50 older studies explored clinical circumstances which may now have changed. However, there is
51 evidence that communication practices are relatively consistent [37, 38]. This is further evidenced in
52 this review, as practices documented in older studies (such as question-answer sequences) were also
53 identified in those conducted more recently.

54 Implications in the context of relevant guidelines and literature:

55 Existing literature shows clinicians have identified health behaviour change talk (HBCT) as difficult to
56 initiate due to its often delicate nature [9], which they are concerned may cause offence [39, 40]. This
57 review identified three strategies clinicians used to initiate these conversations, and provided
58 evidence on patient responses. One strategy likely to be successful is to capitalise on patient initiated
59 HBCT. Clinicians report being more comfortable discussing HBC when the patient initiates the topic
60 [8]. In line with this, we found strong evidence that patients are likely to be more receptive when
61 they have initiated these discussions. Therefore, patient initiation provides good opportunities to
62 engage in HBCT. There was no evidence presented on how doctors can best move forwards with
63 behaviour change talk after the patient has initiated the topic. However, as the patients has raised
64 the topic and demonstrated receptivity, one strategy could be to use collaborative health behaviour
65 change talk, further inviting and accommodating the patient's perspective during subsequent advice
66 giving.

67 Guidelines largely offer advice for HBCT that our review suggests would be would be well-received,
68 including goal setting[41, 42], and tailoring advice to an individual [5, 43]. However, whilst guidelines
69 recommend these strategies they offer little support for how to implement them. The studies
70 reviewed here showed that clinicians were using these strategies, and there was variation in how

71 they were delivered. Having reviewed this variation we were able to identify ways that
72 recommendations were implemented that seemed more likely to be well received, and make the
73 following recommendations on ways to implement these guideline-recommended HBC strategies.

74 Guidelines advise clinicians to set goals [41, 42], and arrange appointments to review these goals at
75 one month following a HBC discussion [5, 6]. Our review has shown that, during these review
76 appointments, it is important to positively reinforce a patient's efforts when reviewing their actions
77 to change behaviours. We found that patients were held accountable for failure to meet clinical
78 outcomes (such as weight loss), rather than on whether or not they had succeeded in changing their
79 behaviours. This resulted in patient resistance displays. An alternative would be for clinicians to help
80 a person see failure as learning. We saw no examples, but literature indicates this might be effective
81 [44].

82 We have shown that HBC advice could be delivered as personally relevant, which is recommended by
83 guidelines. Evidence showed that personalising by inviting and accommodating the patient's
84 perspective, collaborating with patients, and presenting decisions as the patient's choice was likely
85 to be well received. Alternatively, we found HBCT could also be framed as advice for 'patients in
86 general'. This was unlikely to produce resistance from patients, but the authors also hypothesise this
87 may not motivate changes to health behaviours.

88 Guidelines advise associating health behaviours with current or potential health conditions [5, 41, 42,
89 45] and studies of clinicians' views of HBCT show that this strategy is reported to be used frequently
90 in practice to initiate discussions [46]. However, we found mixed evidence of effectiveness. Our
91 results here showed that linking health behaviours and health to initiate conversations may generate
92 resistance displays. This is a potentially risky strategy to initiate HBC and may be best avoided or used
93 cautiously. However, linking to a salient concern later in the discussion could be a helpful way to
94 address resistance.

95 Fear of causing offence when carrying out HBCT is a key concern reported by clinicians in existing
96 studies [8, 9, 39]. Although guidelines mention the delicacy of these discussions they provide little
97 support on how to deal with resistance if it does arise [6, 41, 47]. Most studies in this review also
98 oriented to the delicacy of HBCT and its potential for generating resistance displays from patients,
99 but additionally offered ways to manage resistance. This included changing the topic to talk about
100 less delicate matters.

101 Clinical guidelines often recommend closing HBCT by referring patients to programmes that support
102 behaviour change and giving practical advice on how to change [5, 41, 45]. We did not see evidence
103 of this, and identified a clear paucity of literature on closing HBCT. The limited evidence available
104 showed that closing by providing non-specific advice does not generate resistance. However, this
105 may be unlikely to motivate behaviour change.

106 Much literature on talking about health behaviour change has focussed on motivational interviewing
107 (MI). This process is collaborative and person-centred and aims to motivate patients to change their
108 behaviours. Although no studies in this review used MI, a number of our results highlight aspects of
109 the MI approach. MI, for example aims to avoid direct confrontation when discussing behaviour
110 change [48]. In line with results from MI studies [49, 50] our results which showed that dealing with
111 resistance through direct persuasion escalated resistance displays. Secondly, a fundamental aspect
112 of MI is to take a client-centred approach [48]. Our results align with this aspect of MI theory
113 identifying that collaborating with patients was likely to be a successful way to facilitate engagement
114 in behaviour change talk. This paper has highlighted that aspects of health behaviour change used
115 in MI, may also be successful when clinicians are not using an MI approach.

116 In general, these results complement current guidelines providing further detail on how they can be
117 successfully implemented in practice. A key exception is 'linking' health behaviours and health, which
118 is currently a recommended strategy for clinicians to use, but one which may generate resistance if
119 used to initiate discussions.

120 More research is needed on how to deliver HBCT in ways which can motivate patient uptake of HBCT,
121 but avoid generating resistance. Clinical trials of brief interventions have shown that they are
122 effective in motivating behaviour change and that interventions are well received [51, 52]. Further
123 research could explore conversational strategies used by clinicians in these studies which motivate
124 action on health behaviours. Existing conversation analytic research has shown that patient
125 responses to HBCT in-consultation are associated with subsequent action [53], so it is possible that
126 the responses shown here to generate uptake displays may also be associated with behaviour change.

127

128 Conclusions

129 Clinical guidelines encourage healthcare professionals to engage in HBCT with their patients [5, 6, 42,
130 45]. However, the difficulties in engaging in these often-sensitive discussions are well documented
131 [9, 54, 55]. This review has shown that there are different ways that these conversations can be
132 initiated and carried out, which can mitigate their sensitivity such as delivering HBCT in a general,
133 non-personal way. We found evidence that is mostly consistent with current guidelines, providing
134 further detail on how they can be successfully implemented in practice. However, one practice
135 recommended by clinical guidelines; initiating discussions by associating a patient's health concerns
136 and their health behaviours, is potentially risky and can prompt patients to resist HBC. On the other
137 hand, building conversations collaboratively by inviting patient's views, and tailoring discussions
138 through question-answer sequences may be well received and facilitate patient receptivity to
139 changing their health behaviours. Clinicians can adapt themselves to the delicacy of giving advice
140 that may have not been asked for by depersonalising it and talking 'in theory' or about people in
141 general. Future work might build on the categorisation of HBCT we have developed and examine
142 associations between behaviour change talk, and patient action on their health behaviours.
143 Meanwhile the evidence presented here should reassure clinicians that there are several ways of

144 starting and pursuing HBCT that patients respond to well and they need not feel so anxious when
145 they use these approaches.

146

147

148 List of abbreviations

149 HBCT - Health behaviour change talk

150 HBC - Health behaviour change

151 Consent to publish

152 In this manuscript we present aggregated data from existing studies which had already been
153 published.

154 Availability of data and materials

155 Data were aggregated from published work where people had given consent for quotes to be
156 shared.

157

158 Ethics approval and consent to participate

159 This systematic review and thematic analysis did not require ethics approval. We did not collect
160 participant data for this study and, as such, did not require consent to participate.

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162 The authors declare no competing interests.

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169

170 Authors' contributions

171 CA co-designed the search strategy; screened all studies; extracted data from all included studies;
172 conducted quality assessment; led aggregative thematic synthesis and ordering of top-level themes;
173 and was the lead author on this manuscript. AH screened studies, extracted data from all included
174 studies, conducted quality assessment, and was a major contributor in writing the manuscript. AS
175 screened studies and was involved in critically revising initial drafts of this manuscript. SZ advised on
176 data extraction and synthesis, and input on final grouping of descriptive themes. SZ was consulted
177 as a third party when there were disagreements on inclusion or exclusion of potentially relevant
178 studies, and was a major contributor in writing the manuscript. HW advised on potentially relevant
179 studies which may not have been identified by database searches, and the presentation and ordering
180 of top level themes. HW was involved in critically revising initial drafts of this manuscript. ES advised
181 on potentially relevant studies which may not have been identified by database searches, and on
182 study design, including methods for data extraction and synthesis. NR co-designed the search strategy
183 and identified areas of relevant literature. PA advised on the search strategy, and the clinical
184 implications of this work. PA also screened studies, was consulted as a third party when there were
185 disagreements on inclusion or exclusion of potentially relevant studies, and was a major contributor
186 in writing the manuscript. All authors read and approved the final manuscript.

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189

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- 339

Table 3 Description of conversational practices used

Type of HBCT	Description of HBCT	Patient response	Recommend strategy
Conversational strategies used for initiating health behaviour change talk			
1. Direct questions	Health behaviours are raised as a direct question, targeting a specific health behaviour, such as 'do you smoke?'	Undesirability of health behaviour may be acknowledged	?
2. Linking to a medically relevant concern	Health behaviours are linked with an associated, medically relevant, concern	Varying efficacy. Potential for strong resistance	X
3. Patient initiated discussions	Health behaviour change discussions are initiated by a patient	Receptive to subsequent health behaviour change talk	✓
Conversational strategies used during health behaviour change talk			
1. Generalised HBCT	Not tailored to specific patients' concerns or conditions. HBCT is framed as relevant for 'patients in general'.	Avoids potential for resistance but does not implicate patients to engage in future action.	?
2. Personalised HBCT	HBCT was tailored to individual patient, and often involved patients in decision making and elicited their views	Facilitates patient engagement. Can be perceived as intrusive. Potential to implicate patient action.	
a. Collaborative HBCT	Inviting and accommodating a patient's perspective and presenting decisions as the patient's choice	Displays of uptake	✓
b. Goal setting and assessment	HBC goals are set and reviewed	Potential for resistance if biomedical outcomes, rather than changed behaviours, are prioritised.	✓
3. Managing resistance to behaviour change talk	Addressing or avoiding patient resistance displays.	Patient response depends on strategy used (below)	
a. Pursuing health behaviour change talk	Continuing with HBCT despite patient resistance displays.	Patient response depends on strategy used.	?
b. Initiating a change in topic	Clinicians avoid addressing displayed resistance, and change the topic	Unlikely to result in further resistance	✓
Conversational strategies used for closing health behaviour change talk			

1. Non-specific Advice	HBCT is vague, non-personalised, and lacks a next action step	No overt resistance, but no evidence for effectiveness in facilitating behaviour change	X
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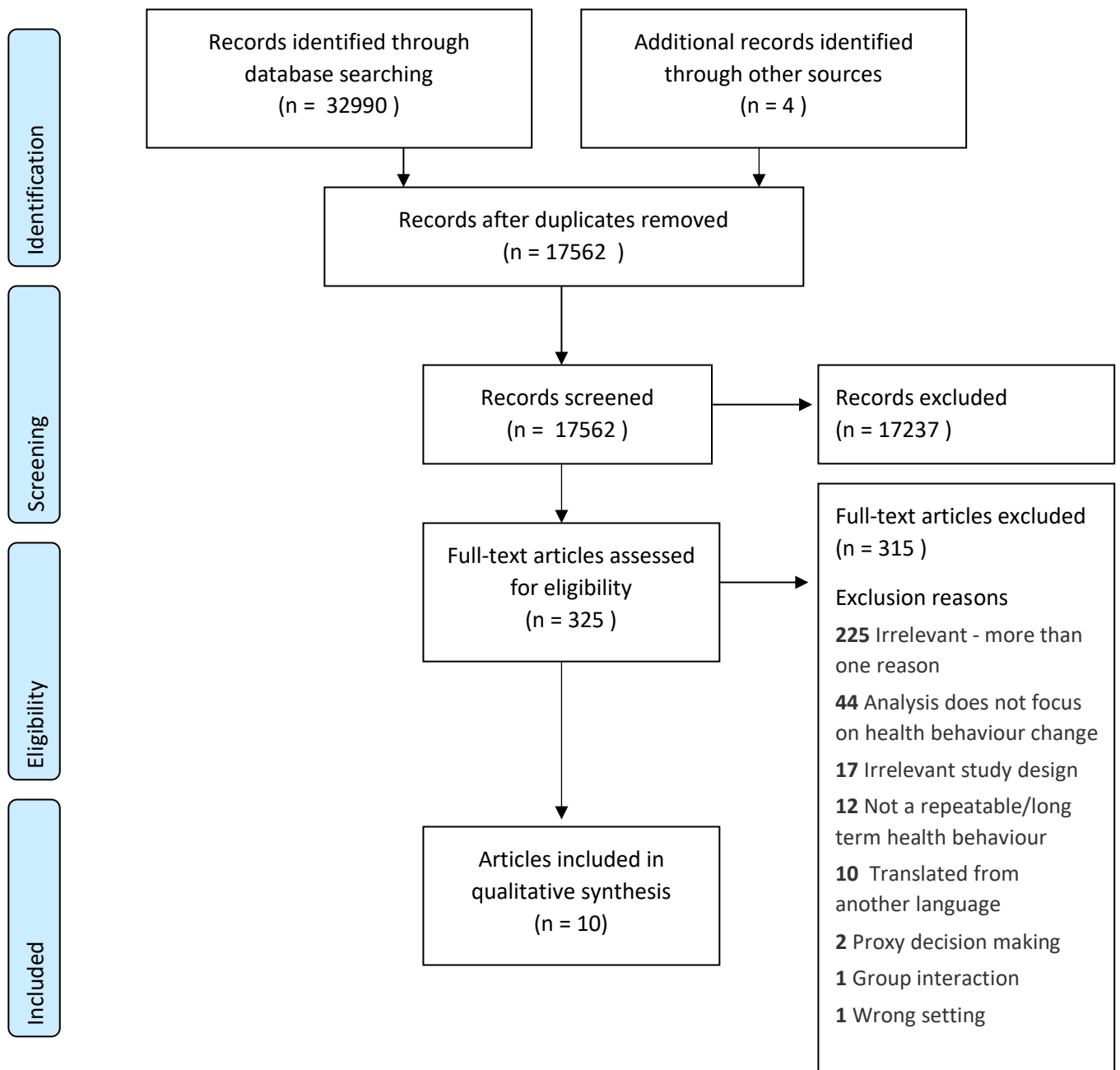
Figure 1: Key terms

Health behaviours - patterns of lifestyle associated behaviour which might impact on patient health

Health Behaviour Change talk – turns at talk designed to change health behaviours. ‘Talk’ comprises aspects of interaction which includes both what is said, but also how it is said. This incorporates aspects of word choice, grammar, conversational action, pitch, pace, intonation, and embodied conduct.

Resistance displays– Interactionally dispreferred responses which may be delayed and mitigated, and which stall the progressivity of the conversational sequence. Resistance can range from no response, a minimal response, or not displaying alignment to the course of action initiated in the prior turn; e.g., behaviour change. Resistance occurs moment-by-moment through an interaction, and is managed by participants during the interaction [1, 2].

Figure 2 Prisma Flow Diagram



Additional File 1

Data Sources:

We searched the following databases: MEDLINE(OvidSP)[1946-present]; Embase(OvidSP)[1974-present]; Web of Science Core Collection(Thomson Reuters)[1945-present]; AMED(OvidSP)[1985-present]; CINAHL(EBSCOHost)[1982-present]; PsycINFO(OvidSP)[1967-present]; Scopus; Sociological Abstracts(CSA)[1952-present], and restrictions were applied to specify human subjects and English language. We searched peer-reviewed journals and published book chapters from 1945 onwards. The following resources were additionally searched: bibliographies of included full-texts; specialist online discussion lists; and review team knowledge and contacts. All searches were conducted from January to March 2016. Searches were updated in March 2018. This comprehensive research strategy was designed with advice from an information specialist (NR). The full search strategy is available in Additional file 1.

Additional File 1:

The first search strategy was designed to identify literature which focusses on a specific health behaviours (such as weight loss, or smoking cessation), and the second was designed to identify literature which may focus on a behaviourally-related action (such as adherence or motivation), rather than specific behaviour.

Search Strategy 1: Medline Ovid

▲ Searches

- 1 (medic* or treatment* or care* or healthcare* or health* or patient* or doctor* or clinic* or physician* or primary care* or consult* or general practi* or family practi*).mp.
- 2 ("conversation analysis" or "conversational analysis" or "conversation analyses" or "conversational analyses" or "conversation analytic" or "conversational analytic" or "discourse analysis" or "discourse analytic" or "discourse psychology" or "sequential-analysis" or "conversation-analysis conversational-analysis" or "conversation-analyses" or "conversational-analyses" or "conversation-analytic" or "conversational-analytic" or "talk in interaction" or "talk-in-interaction" or linguistic*).mp.
- 3 ("weight loss" or smok* or alcohol* or lifestyle* or intervention* or diet* or exercise* or "physical activity" or activ* or "blood pressure" or diabetes or "tobacco use" or "physical inactivity" or "body weight" or cholesterol or "stress management" or "sexual health" or "organ donation" or "life support" or vaccinat* or weigh*).mp.
- 4 (audio or video).mp.
- 5 1 and 2 and 3 and 4

Search Strategy 2: Medline Ovid

- # ▲ Searches
- 1 (medic* or treatment* or care* or healthcare* or health* or patient* or doctor* or clinic* or physician* or primary care* or consult* or general practi* or family practi*).mp.
 - 2 ("conversation analysis" or "conversational analysis" or "conversation analyses" or "conversational analyses" or "conversation analytic" or "conversational analytic" or "discourse analysis" or "discourse analytic" or "discourse psychology" or "sequential-analysis" or "conversation-analysis conversational-analysis" or "conversation-analyses" or "conversational-analyses" or "conversation-analytic" or "conversational-analytic" or "talk in interaction" or "talk-in-interaction" or linguistic*).mp.
 - 3 (motivat* or coerc* or recommend* or interven* or resist* or incentiv* or encourage* or accept* or "decision making" or ahere* or cooperat* or empower* or instigat* or initiat* or "behaviour change" or "behavior change" or "behavioural change" or "behavioral change" or "behavioural changes" or "behavioral changes" or persuad* or choice* or uptake* or nudge* or convinc* or concord* or communicat* or agen* or pressur* or negotiat* or comply or compliance or enable* or co-operat* or facilitat* or barrier* or disincentive* or refusal).mp.
 - 4 Physician-Patient Relations/ or Health Communication/ or Patient Compliance/ or Medication Adherence/ or Patient Satisfaction/ or Treatment Refusal/ or Negotiating/ or health behaviour/ or decision making/ or motivation/ or health behavior/
 - 5 3 or 4
 - 6 (audio or video).mp.
 - 7 1 and 2 and 5 and 6