

1 **Using Computer Assisted Qualitative Data Analysis Software (CAQDAS; NVivo) to assist in the**
2 **complex process of realist theory generation, refinement and testing**

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25

26 **Abstract**

27 There have been several calls for more transparency in realist methods, particularly in the complex
28 process of programme theory development and refinement. This paper will describe the way in which
29 Computer Assisted Qualitative Data Analysis Software, specifically, NUD*IST Vivo (NVivo), was used
30 to build and refine programme theories (using literature and interview data) in a realist evaluation.
31 This article presents the evolving and complex process of coding several data sources to nodes and
32 child nodes, whilst writing 'attached memos' to highlight the process of theory generation. In this
33 project, NVivo helped create an explicitly documented and evidenced audit trail of the process of
34 programme theory refinement, answering to calls for further transparency in realist anal. RAMESES I
35 and II have provided a platform to improve transparency in reporting realist research, by developing
36 consensus and evidence-based reporting guidelines. We propose that the use of NVivo in realist
37 approaches can help structure the iterative and by nature 'messy' process of generating, refining and
38 testing complex programme theories when drawing on multiple data sources simultaneously. This
39 effectively creates a structured track record of the analytical process, which increases its rigour and
40 transparency in the analysis process.

41 **Keywords:** Qualitative; NVivo; CAQDAS; Realist; Evaluation; Theory

42 **Background**

43 Computer-assisted qualitative data analysis software (CAQDAS) has been used as an aid to data
44 analysis in qualitative research in several methodological fields, including grounded theory (Bringer et
45 al., 2004), interpretative phenomenological analysis (Clare et al., 2008) and realist meta theory
46 (Bergin, 2011). NVivo, a form of CAQDAS, "supports code-based inquiry, searching, and theorizing
47 combined with ability to annotate and edit documents" (Richards, 1999). Realist researchers have
48 found using the programme challenging but valuable in advancing the robustness of qualitative
49 research (Bergin, 2011).

50 Realist evaluation is used to understand and evaluate complex social programmes (Pawson and Tilley,
51 1997). It focuses on 'what works, for who, why and in which circumstances' using Context, Mechanism
52 and Outcome Configurations (CMOC) as opposed to asking only whether or not an intervention
53 'works'. To operationalise this, explanatory statements are developed and tested, resulting in a
54 refined programme theory. A key analytical tool in realist evaluation is the CMOC, conveying that
55 intervention resources are introduced into contexts in a way that enhances a change in reasoning; this
56 alters the behaviour of participants, which leads to measurable or observable outcomes (Dalkin et al.,
57 2015; Pawson and Tilley 1997).

58 Realist evaluation and realist programme theory building is an iterative process, which often demands
59 engagement with numerous data sources. This can make the often convoluted and iterative process
60 of developing, testing and refining complex programme theory difficult. There have also been calls for
61 greater transparency in realist methods (Welch and Tricco, 2016), in regard to how programme
62 theories have been developed and refined, sometimes using various data sources. Literature also
63 suggests that researchers find realist methods difficult to operationalise (Dalkin et al., 2015; Shaw et
64 al., 2018; Feather, 2018). Techniques to maximise the transparency of the realist analytical process
65 have included systematically dated recordings of decision making for a whole project in a MS Word
66 document (Lhussier et al., 2015) the use of distinct MS Word documents for each individual

67 programme theory (Dalkin et al., 2018b, Dalkin et al., 2016), and use of google docs (Turner et al.,
68 2018). Whilst these permitted a systematic recording of the analytical process undertaken in
69 developing and refining theories, they presented key challenges with regards to working across
70 different datasets, and integrating data in this analytical process trail. This meant that although there
71 was a clear effort to increase transparency of an inherently iterative process, the way in which this
72 could be utilised beyond the team, and the way in which various analytical decisions could be
73 rationalised was limited. The RAMESES II reporting guidelines for realist evaluations is one way in
74 which the processes surrounding realist research have been illuminated. The guidelines ensure realist
75 evaluations are reported in sufficient detail, in the context of existing evidence, and with a rating of
76 strength of evidence for main findings that will greatly assist users of the evaluations (Welch and
77 Tricco, 2016, Wong et al., 2016). While these standards have been invaluable in ensuring
78 methodological clarity and comprehensiveness in the reporting of realist projects, less material is
79 currently available which gives an insight into the processes which lie behind orderly, published
80 accounts of realist evaluation. It can be difficult to evidence the analytical micro processes which lead
81 to a clearly formulated programme theory in realist research, especially given the nature of the
82 complex intervention under study. Welsh (2002, pg.1) states that “*Computer assisted qualitative data*
83 *analysis software (CAQDAS) has been seen as aiding the researcher in his or her search for an accurate*
84 *and transparent picture of the data whilst also providing an audit of the data analysis process as a*
85 *whole—something which has often been missing in accounts of qualitative research.” Therefore, we*
86 propose that the use of CAQDAS (such as NVivo) could be a tool in the realist evaluators box, which
87 aids them in the inherent complex approach to theory generation; in doing so this may also enhance
88 transparency.

89 The paper adds to a scant evidence base on the use of NVivo in realist evaluation (Dalkin and Forster
90 2015; Douglas et al., 2010, Marchal et al., 2010, Maluka et al., 2011; Gilmore et al., 2019). Bergin
91 (2011) has carried out a meta-realistic theory analysis; this approach and analysis process was
92 somewhat different to what we describe below, drawing on realist meta-theory (Bhaskar, 1989) as
93 opposed to realist evaluation (Pawson and Tilley, 1997). This meant that a thematic analysis was
94 utilised as opposed to a realist logic of analysis driven by programme theory. **In this paper, we**
95 **therefore aim to demonstrate the use of CAQDAS, specifically NVIVO, in the organisation and**
96 **analysis of a realist evaluation.**

97 **Method**

98 This article will provide a case study of how CAQDAS, specifically NVivo, was used to aid in the complex
99 and messy process of theory generation, refinement and testing in NVivo, using an example of a recent
100 realist evaluation exploring the health impact of welfare advice. The full details of the study are
101 provided elsewhere (Dalkin et al., 2018; Forster et al., 2016). In brief, a realist evaluation of an
102 intensive advice service (provided by Citizens Advice) in the North East of England explored the impact
103 advice had on health, using a stress and wellbeing lens. Quantitative findings indicated that stress was
104 significantly decreased and wellbeing increased after interaction with the service. This was explained
105 through qualitative data, highlighting that advice worked through increasing individual capabilities,
106 fostering trust, and acting as a buffer between state organisations and the client.

107 The following section will focus on the process of using NVivo as opposed to presenting the findings
108 of the Citizens' Advice study. The aim of the article is not to explore the depths of NVivo and all of its
109 functions, but to provide a case study of how it can be operationalised in a realist analytical process.

110 **Findings**

111 As highlighted in the RAMESES II guidelines (Wong et al., 2016), every realist evaluation presents itself
112 differently and the focus here is therefore not on standardisation of NVivo use. As with the method
113 itself, use of NVivo requires flexibility and should be tailored according to the specific programme and
114 focus of the research.

115 **Development of initial programme theories as nodes**

116 The research process began with 'hunches' about how the Citizens' Advice projects might have a
117 health impact for clients. Hunches can be defined as the evaluators' 'informed guesswork' about how
118 the programme works (RAMESES II Project, 2017); these initial hunches were formed from the
119 evaluators' informal knowledge of the programme. They constituted rough, unformatted and
120 unedited ideas about how the programme worked and sometimes took the form of 'if-then'
121 statements. For each hunch we made a node. Nodes are central to working with NVivo; they function
122 to gather related material in one place so that emerging patterns and ideas can be identified. Nodes
123 are usually created as 'themes' or 'cases' such as people or organizations. In the project described
124 here, nodes were initially used as 'hunches' or ideas around how the programme worked. Each node
125 was given a title, such as "Shaming the unhealthy". We then created a 'linked memo' for each node
126 which allowed us to provide a more detailed description of the thinking behind our initial hunch. At
127 this point it became clear that coding by C, M and O would lead to disjointed themes and therefore a
128 decision was made to code using a programme theory lens, which is outlined here. Thus, each node
129 was developed from an 'initial hunch' into an initial programme theory at this point, through theory
130 development sessions conducted as a full research team. This was based on our understanding of the
131 advice service, from a general literature scope carried out for the project's funding bid and protocol.

132 Following from this we conducted realist interviews with Citizens Advice (CA) staff. Using Manzano's
133 (2016) three-stage realist interview process, this constituted the theory-gleaning phase. The focus of
134 these interviews was to understand generally what works for clients receiving advice, specifically for
135 whom, in which circumstances and why. Example questions are provided in Table 1. These interviews
136 aimed to develop our initial hunches into well formulated Initial Programme Theories (IPT), which
137 could be formally tested through further empirical data. The interviews were transcribed and then
138 imported into NVivo. Interview data could then be coded to the IPT nodes and where information was
139 new (not covered by an existing IPT node) a theory/node could be created. For example, the IPTs did
140 not detail that CAB can provide brief health interventions; this was shared during interviews with
141 Citizens Advice project leads and therefore was developed as an additional IPT. This process helped
142 us to develop and refine our IPTs, exploring the different context, mechanism and outcome
143 configurations associated with the CAB projects.

144 We then revisited the literature in more detail to find supporting and disconfirming evidence for our
145 IPTs; realist evaluation and realist programme theory building is an iterative process (Pawson, 2006).
146 In order to keep various primary and secondary data sources coded under the same nodes but stored
147 in distinct folder so as to facilitate data retrieval, we used the N-Vivo function of child nodes. Child

148 nodes allow you to create 'sub themes'. Therefore each node (for example "Basic Needs") now had
149 two child nodes: 'Literature' and 'Interview' (Figure 1). For each overall node, we recoded our
150 interview data from CA staff into the child node, '1st interview with CA staff'. We then selected the
151 'aggregate coding from child nodes' function which meant that the main node now stored information
152 from both interviews and literature. This gave us the option of examining data from all or only select
153 sources, for each theory node.

154 *INSERT FIGURE 1*

155 **Initial Programme Theory refinement with CA staff**

156 We then interviewed the CA staff a second time; this constituted the theory refinement stage
157 (Manzano, 2016). The initial programme theories were shared in interviews with staff, who were given
158 the opportunity to comment upon and suggest additions to these theories. This was done in the form
159 of general questions, developed from the IPTs, as opposed to presenting the theories in CMO form
160 (Manzano, 2016). These interviews were transcribed and imported into NVivo, before being analysed
161 and coded to IPT nodes where appropriate. The theory was then refined, based on the data from this
162 second set of interviews with staff. The theory refinement process was conducted as a team, with the
163 discussions and rationale for adjustments to theories recorded and dated in linked memos associated
164 with each node (Figure 2). This meant that the full team's thinking was captured and reasons for
165 changing the programme theory were explicitly noted. Where the IPT changed, additions were
166 inserted using coloured font and deletions using a strikethrough. This ensured it was explicit to all the
167 team how the programme theory has evolved throughout the project.

168 *INSERT FIGURES 2 & 3*

169 **Programme theory 'testing'**

170 The analysis of the interviews with Citizens Advice staff led to 17 IPT (Figure3). Interviews with 22
171 clients were conducted to test the initial programme theories. The interviews were transcribed and
172 imported into NVivo, in the same way as for staff interviews. These were then coded to the
173 appropriate node, under the child note of 'client interviews' (Figure 4).

174 *INSERT FIGURE 4*

175 Often, it was felt that analysis led to coding under a programme theory that didn't quite 'fit'. At this
176 point, a team member would call a full team meeting for programme theory refinement. Thus, whilst
177 coding of the transcripts was done by independent team members, programme theory refinement
178 was carried out by the team as a whole using the main node which encapsulated data from CA staff
179 interviews, client interviews and the literature.

180 The full team (5 people) met bimonthly (or more regularly if necessary) to discuss analysis and refine
181 the programme theories. After 4 interviews had been carried out with clients, the team felt that the
182 programme theories required refinement. As noted above, this was highlighted due to issues in coding
183 to the nodes we currently had; team members were finding their coding did not 'fit' with the current
184 nodes (programme theory) suggesting refinement was required. As individual team members had
185 analysed interviews, they came to this meeting with evidence-based and theory-driven ideas as to
186 how the programme theory should be refined. A process of debate then ensued, anchored by reading
187 data extracts together as a team, in order to refine current or create new programme theories which

188 capture and explain all data. The process was therefore two fold; individual team members coding
189 single interviews to pre-existing nodes; then whole team reviewing the nodes and refining their
190 formulation in view of the data, utilising retroduction. Retroduction refers to the identification of
191 hidden causal forces that lie behind identified patterns, recognising the insufficiency of both inductive
192 and deductive logic (Jagosh, 2020).

193 PTs were often 'voided' when unsubstantiated by data. However, in order to ensure they were not
194 forgotten, they were not deleted and remained within the NVivo file. Should relevant data later
195 emerge they could then be 'unvoided'. The authors acknowledge that the term 'void' does not
196 represent the realist premise of theory refinement, where no theories are 'thrown out' of the analysis
197 (Pawson and Tilley, 1997). A better term for these theories could be 'unsubstantiated at that time', as
198 these theories were never discounted, and were sometimes merged with other theories, but
199 regardless the data was never lost. In the spirit of transparency and as we show the inner workings of
200 our NVivo file, the term 'voided' has been used throughout.

201 Often as a process of refining programme theories, the names of the actual theory would evolve. For
202 example, 'Basic Needs' changed to 'stop gap' to more efficiently capture the essence of the
203 programme theory. The final list of nine programme theories is shown in NVivo in Figure 5.

204 *INSERT FIGURE 5*

205

206 **Overall explanatory framework**

207 An overall explanatory framework to understand how advice impacted on CA clients stress and
208 wellbeing was developed from the programme theories, informed by substantive theory. Figure 6
209 displays the final list of programme theories, and whether they were 'voided' or contributed to the
210 overall explanatory endeavour.

211 Specific substantive theories were identified through both structured searches and the project team's
212 own theoretical knowledge base.

213 *INSERT FIGURE 6*

214 **Discussion**

215 Realist evaluation and realist programme theory building is an iterative process and often demands
216 engagement with numerous data sources. This paper provides consideration of how we conduct
217 theory-driven realist research, how theories start as hunches, which are then refined using evidence.
218 It also highlights how these theories are the focus of discussion and disputation amongst scholars,
219 where the theories are refined, judged, sifted, winnowed and tentatively unsubstantiated. Use of
220 NVivo allowed us to capture these theory generation discussions, whilst thinking out loud and being
221 immersed in the data in a shared way. This allowed us to better share and synthesise perspectives
222 from the data as a group, rather than in isolation. It also meant that no reflection was lost, ambiguous
223 or unable to be challenged and refined in the future.

224 The paper illuminates this important and vaguely understood aspect of realist analysis. The use of
225 NVivo could aid in the pragmatics of engaging in the ‘messy’ and iterative process of realist sense
226 making from multiple data sources, thereby enhancing rigour as an audit trail of the analytical process
227 is documented, and transparency as no step in the process of analysis was lost to this documenting
228 endeavour. Whilst neither we, nor realist researchers, aim or want to find a method to audit
229 qualitative research, we propose that NVivo can aid in the complex process of programme theory
230 development, refinement and testing, whilst increasing transparency; even if this transparency is of
231 use only to the internal evaluation team. Use of NVivo allows ‘tracking’ of *initial* through to *tested*
232 programme theories, with the use of linked memos and different data sources (e.g. literature, client
233 interviews, staff interviews) utilising child nodes. The number of programme theories can be tracked,
234 and no programme theories are forgotten in the multifaceted and iterative analysis due to the process
235 of ‘voiding’. This not only provides clarity whilst carrying out complex realist analysis, but also when
236 writing for publication or presenting interim findings.

237 **Overcoming issues of transparency**

238 As a project team, we found that use of NVivo allowed for essential retrodution and group production
239 of refined programme theories, drawing on all of the various expertise in the team. This was time
240 consuming, as opposed to progressing analysis in isolation; but it carried more explanatory potential
241 drawing on the knowledge of all team members. This issue isn’t solely applicable to NVivo, but to all
242 group projects using realist analysis. However, we feel that NVivo aided in the group process by
243 tracking all aspects of programme theory refinement using linked memos, thus enhancing
244 transparency. It also caveated for unintended occurrences, for example, researcher illness.

245 Importantly, the technology did not decrease the amount of time needed to read, conceptualize, and
246 analyse data (Bringer, 2004). Data analysis in realist research, involving the identification of underlying
247 generative causal outcome patterns, is iterative and time consuming (Robert et al., 2017, Punton et
248 al., 2016). Using NVivo did not necessarily reduce analysis time, but did make writing up findings
249 easier, due to clarity in justification of findings. It provided an anchor for team ‘brainstorming’ around
250 the development and testing of programme theories, in a way that was very pragmatic and grounded
251 in the data. It meant that the whole team could engage in data analysis, whether they had physically
252 collected some, none or all the data. It thus provided a space for team members to challenge each
253 other’s interpretation in a productive disputatious space, where everything was recorded
254 systematically. We do not wish to encourage an instructive or ‘one size fits all’ approach to the
255 activities of theory generation; as with realist approaches in general, the theory generation,
256 refinement and testing documentation processes should be tailored to the individual project. This
257 should be thought through, and decisions about technology thoroughly considered, alongside other
258 creative means of theory generation. The process of using N-Vivo meant that there was a thorough
259 sense-checking procedure in place, adhering to the systematic and thorough application of the
260 principles of qualitative research, which added rigour to the analysis (Barbour, 2001). The approach
261 provides quality assurance that is more complex than checklist ‘technical fixes’, as described by
262 Barbour (2001).

263 **Engaging with multiple data sources**

264 A further benefit of using NVivo was the ability to upload both primary and secondary data which can
265 be used for coding. This allows literature to be considered as data, which is consistent with a realist

266 approach. This therefore facilitates prior theoretical ideas, concepts, models or propositions to be
267 used in relation to theoretical sampling and theory generation (Layder, 1998). Furthermore, as the
268 blending of evaluation and synthesis continues (e.g. (Maidment et al., 2017, Cooper et al., 2017)) we
269 feel there is much scope for NVivo to be useful within this approach, which integrates both literature
270 and empirical data.

271 **Challenges and future research**

272 The process does have inherent challenges; although the software is fairly user-friendly, it can be time
273 consuming becoming familiar with NVivo and its functions. Furthermore, system issues can present
274 further problems. For example, due to institutional system restrictions at the time, in our project only
275 one researcher could work on the file from a shared drive at once. This meant that the master file,
276 which was saved on a password protected institutional shared drive, had to be downloaded on
277 individual computers while working on it, and re-uploaded to ensure data protection on a secure drive.
278 However, these issues are not distinct to realist approaches (Bergin, 2011).

279 This constituted the research team's first attempt at the use of NVivo in a realist evaluation. There are
280 undoubtedly other ways in which NVivo can be employed in a realist project. For example, nodes could
281 be used for Contexts, Mechanisms and Outcomes instead of programme theories. The use of NVivo
282 will (and should) be different dependent on the individual project; all realist projects require tailored
283 data collection and the analysis should also be project dependent. More complex functions could also
284 be employed in NVivo, for example, using matrices, and we highlight this as an avenue for future
285 research. Realist evaluations are carried out from different disciplinary perspectives and use a plurality
286 of methods that are fit for purpose due to the method neutrality of the approach. NVivo currently
287 allows input of audio, text based, and visual material, and more innovative approaches to data
288 collection could be incorporated in to realist analysis using NVivo. For example, stimulated recall
289 (Calderhead, 1981) which utilises video technology could be used where appropriate.

290 Finally, in this specific project, we feel we could have further integrated the substantive theories
291 considered and thus added an extra layer of transparency at this level of abstraction; we will look to
292 action this in future projects utilising NVivo and realist approaches.

293 **Conclusion**

294 RAMESES I and II have provided a platform to improve the understanding and reporting of findings in
295 realist research, by developing consensus and evidence-based reporting guidelines (Wong et al.,
296 2016). We have shown how the use of NVivo in realist methods has the potential to aid realist
297 researchers in the complex process of theory development, refinement and testing. It may also add
298 transparency to the approach, by using several NVivo functions in innovative ways. Having illustrated
299 how we used the different functions offered by NVivo in one realist evaluation project, we invite other
300 researchers to take our work further, and to explore and advance the use of NVivo in realist methods.

301 **Declaration of interest**

302 Ethical approval for the study was granted by Northumbria University's Ethical Approval system on
303 01/06/2015; all participants from the study provided informed consent to participate and for
304 publication. The data collected in the study is not readily available due to ethical constraints. Materials

305 used throughout the study are available upon request. The authors declare that they have no
 306 competing interests. Funding for the original study was granted from the NIHR School for Public Health
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403

404 **Figures**

405

406

Nodes					Search Project
Name	Files	References	Created On		
Basic Needs	8	21	03/07/2015 14:43		
1st Interview with CA staff - basic needs	2	4	27/11/2015 12:42		
Literature - basic needs	6	13	27/11/2015 12:42		

407

408

Figure 1: Displaying node and child nodes to segregate empirical data and literature.

Basic needs

Initial Programme Theory: In a context where someone's basic needs are unmet, the provision of a stop-gap (e.g. food parcel, prevention of homelessness, a fridge) leads to people feeling relieved and fosters trust in CAB (reasoning) resulting in an immediate resolution and space to address deeper rooted problems (outcomes)

18.09.15
 The JRF report provides support for this IPT. "For example, in well developed welfare systems, the health-damaging effects of sudden income losses resulting from unemployment or family breakdown may be reduced by the availability of welfare benefits."

11.03.16 - Refinement of theory post staff interviews
 Sorting out the most urgent issues allows the person to be less stressed and focus on what is important to them - the quotes support this.

Are social networks looser in those in lower Socioeconomic status (SES) areas? Are the consequences more severe in the cases that CAB clients present with? If a person has tight connections they are less likely to become out of control and can reach out for help easier. Are large social networks more helpful? Also dependent on SES of social network. If family and friends are all struggling with money then they may not be able to support the potential client.

Could it be that it is easier to admit to a stranger that you are struggling as opposed to friends and family?

Context - Wider political context: more people now need to contact CAB due to scrutiny. This supports the context in this theory, as once the person's needs were met but a change in policy on benefits or a change in the person's living circumstances has meant that their basic needs are unmet.

Sticking plaster quote supports 'stop gap' in theory. Quotes also support immediate resolution of problems.

CAB have to look into the underlying reasons as to why the person needs, for example, a food parcel. They cannot just issue them without investigation. Therefore the theory was refined...

In a context where someone's basic needs are unmet, the provision of a stop-gap (e.g. food parcel, prevention of homelessness, a fridge) and investigation into underlying reasons for crisis leads to people feeling relieved and fosters trust in CAB (reasoning) resulting in an immediate resolution and space to address deeper rooted problems (outcomes)

07.11.2016

There is stronger evidence in the project lead interviews for this support being maintained over numerous problems. In the client interviews this is represented as being limited to one aspect of crisis. This may be a different view of the service, or how clients have described the most acute problems and more is discussed elsewhere.

Potentially different models for the service - crises being returned to when they arise, low level maintenance of problems and everything in between, with CAB remaining reactive throughout.

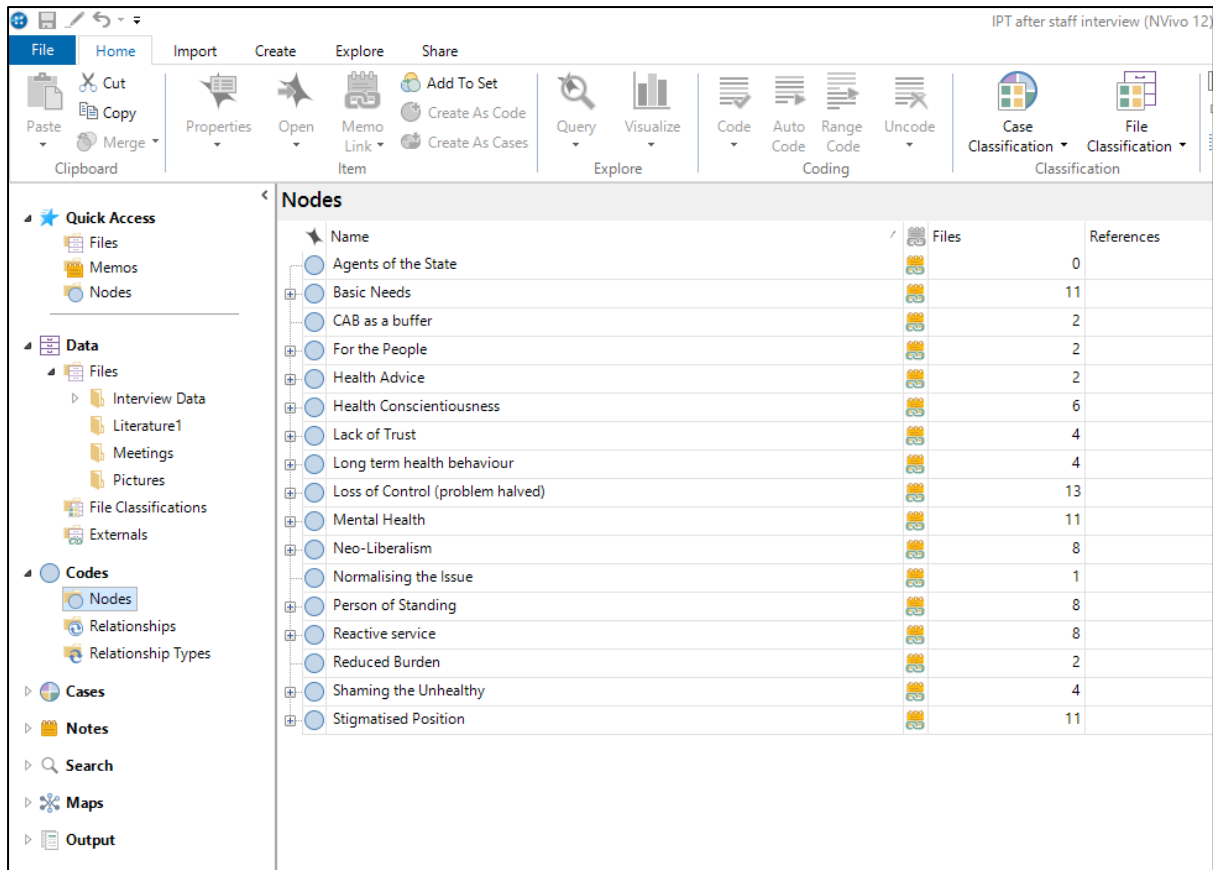
Little evidence for the use of stop gaps, rather than ongoing support

In a context where someone's basic needs are unmet or are under threat of being unmet (first acute issue), the provision of a stop-gap (e.g. food parcel, prevention of homelessness, a fridge) or prevention strategy and investigation into underlying reasons for crisis leads to people feeling relieved and fosters trust in CAB (reasoning) resulting in an immediate resolution and space to address deeper rooted problems - a reduction in stress (outcomes)

409

410 **Figure 2:** Opening the scrapbook - screen shot of node linked memo, with restated programme theory,
 411 highlighting how it was edited using additional coloured writing and strikethrough font function.

412



413

414 **Figure 3:** Screen shot of the initial programme theories in NVivo

415

Nodes						Search Project
Name	Files	References	Created On	Created By		
Basic Needs		12	31	03/07/2015 14:43	ML	
1st Interview with CA staff - basic needs		2	4	27/11/2015 12:42	SONIA	
2nd interview with CA staff - basic need		3	9	11/12/2015 16:57	NF	
Client interview - basic needs		1	1	09/03/2016 13:38	SONIA	
Literature - basic needs		6	13	27/11/2015 12:42	SONIA	

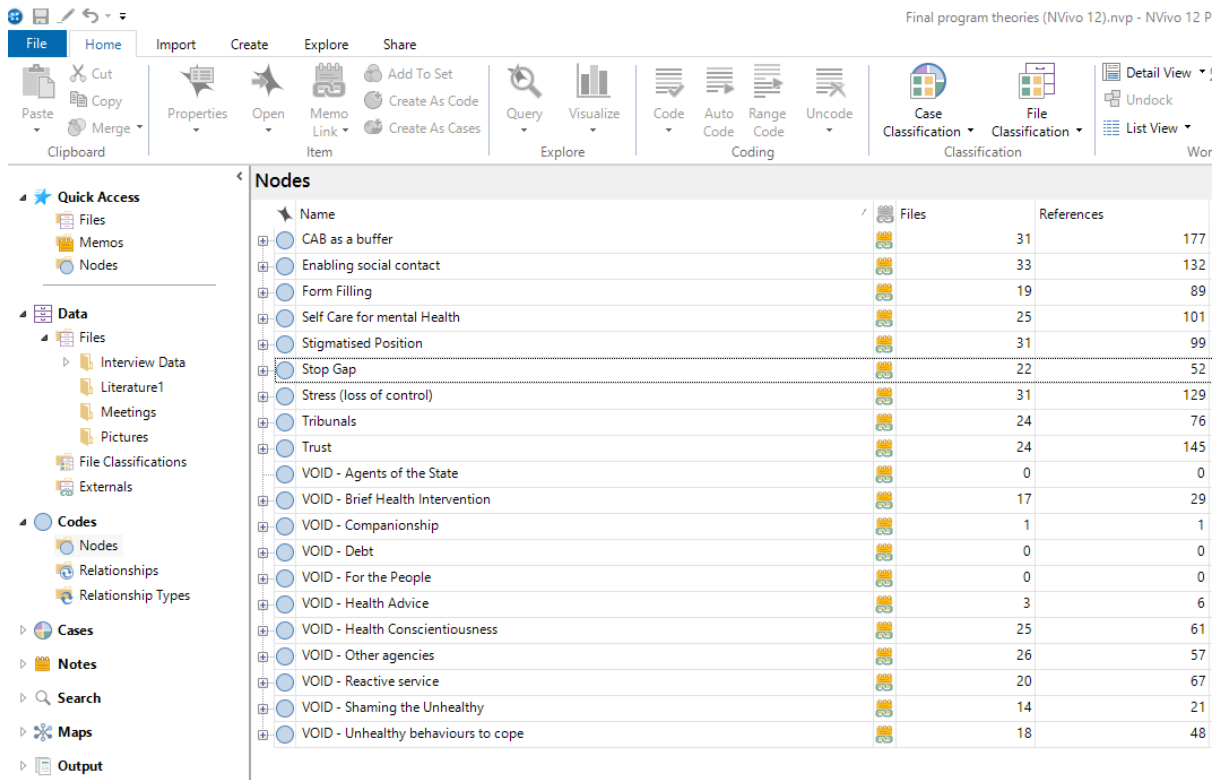
416

417

418 **Figure 4:** Displaying node and child nodes to segregate empirical data (by source) and literature.

419

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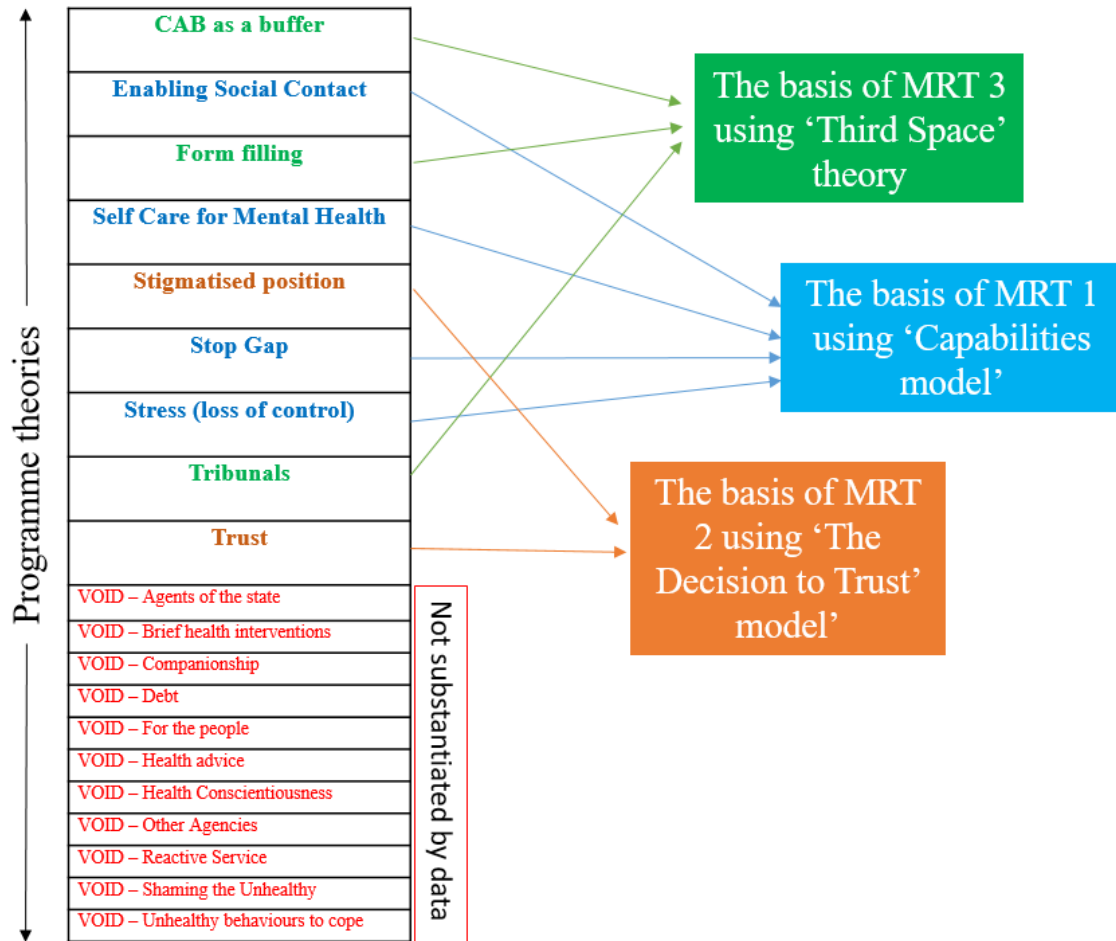
422

423 **Figure 5:** Final list of ‘tested’ programme theories; also displaying those that were ‘voided’ throughout
 424 the analysis.

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428

429 **Figure 6:** List of programme theories; those that were 'voided' and those that contributed to final
 430 (middle range) explanatory framework.

431

432 **List of Figure Captions**

433

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435 **Figure 2:** Opening the scrapbook - screen shot of node linked memo, with restated programme theory,
436 highlighting how it was edited using additional coloured writing and strikethrough font function.

437 **Figure 3:** Screen shot of the initial programme theories in NVivo

438 **Figure 4:** Displaying node and child nodes to segregate empirical data (by source) and literature.

439 **Figure 5:** Final list of 'tested' programme theories; also displaying those that were 'voided' throughout
440 the analysis.

441 **Figure 6:** List of programme theories; those that were 'voided' and those that contributed to final
442 (middle range) explanatory framework.

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