Journal of Mixed Methods Research

An Innovative Mixed Methods Approach to Studying the Online Health Information Seeking Experiences of Adults With Chronic Health Conditions

Joanne Mayoh, Carol S Bond and Les Todres

Published by:

$SAGE

http://www.sagepublications.com

Additional services and information for *Journal of Mixed Methods Research* can be found at:

Email Alerts: http://mmr.sagepub.com/cgi/alerts

Subscriptions: http://mmr.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.com/journalsPermissions.nav

Citations: http://mmr.sagepub.com/content/6/1/21.refs.html

>> Version of Record - Mar 13, 2012

OnlineFirst Version of Record - Aug 26, 2011

What is This?

An Innovative Mixed Methods Approach to Studying the Online Health Information Seeking Experiences of Adults With Chronic Health Conditions

Joanne Mayoh[1], Carol S Bond[1], and Les Todres[1]

Abstract

This article presents an innovative sequential mixed methods approach to researching the experiences of U.K. adults with chronic health conditions seeking health information online. The use of multiple methods integrated within a single study ensured that the focus of the research was emergent and relevant and ultimately provided a more complete picture of the experience of online health information seeking through joint discussion. This was achieved by communicating both breadth and depth of data relating to the phenomenon. Findings indicate that if the study had used a single research method in isolation, something would have been lost or misunderstood regarding the phenomenon, thus demonstrating the value of each stage within the research design and of the integration of these findings.

Keywords

complimentarity, phenomenology, experience, health informatics, Internet

Over the past two decades, the Internet has become a vitally important source of health information for the general public. Recent estimates suggest that, within the United Kingdom, around 42% of regular Internet users recently sought health information online, a figure that is rapidly growing year on year (Office for National Statistics, 2009). The popularity of online health information (OHI) seeking has been reflected in the development of a whole new academic discipline dedicated to studying the phenomenon, labeled consumer health informatics (CHI). Labeling the phenomenon in this way assumes that patients are operating as consumers when seeking OHI. According to Eysenbach (2000),

> Consumer health informatics is the branch of medical informatics that analyses consumers' needs for information; studies and implements methods of making information accessible to consumers; and models and integrates consumers' preferences into medical information systems. (p. 1713)

[1]Bournemouth University, Poole, Dorset, UK

Corresponding Author:
Joanne Mayoh, Bournemouth University, D144 Dorset House, Talbot Campus, Poole, Dorset, UK BH12 5BB
Email: jmayoh@bournemouth.ac.uk

Despite numerous studies being conducted within this emerging academic field, there are still many questions that remain unanswered, inhibiting our overall knowledge of this rapidly developing phenomenon. This is notably the case in terms of our understanding of OHI seekers within the United Kingdom, regarding which very few studies have been conducted. Furthermore, the limited relevant research available often fails to adequately tackle the complex nature of the phenomenon of OHI seeking. This sparse landscape prompted the development of a research project with the potential to provide a broad description of the phenomenon of OHI seeking, alongside life-world descriptions that could then help communicate additional depth. Although the research delivered extremely poignant findings in terms of the OHI-seeking experience for U.K. adults with chronic health conditions, the current article has a methodological focus, with which we discuss how mixed methods research can be used to reflect the complexity of a phenomenon by identifying and communicating both breadth and depth of information.

This research was conducted in two phases. Phase 1 consisted of two predominantly quantitative questionnaires designed to gather broad data relating to the experiences of OHI seeking for adults with chronic health conditions as well as collecting information to help identify the barriers to OHI seeking as perceived by nonusers (see Appendix A). This phase had two core functions within the overall methodological design: to contribute a breadth of data relating to the overall OHI-seeking experience for adults with chronic health conditions and to help identify the relevant emerging phenomena within a relatively underresearched field. Once an appropriate focus had been identified, in-depth qualitative interviews were conducted (Phase 2), and descriptive phenomenological analysis was used to explore, in relation to the identified focus, how searching for health-related information online became a meaningful activity for those adults living with chronic health conditions.

In addition to making a significant contribution to knowledge in the field of CHI in terms of breadth and depth, an additional aim of the research was to review and develop innovative mixed methods research techniques in order to make an original contribution to this form of methodological approach. With the purpose of demonstrating how the study made a significant contribution to the this field, the methodological thrust of this article is to consider the philosophical standpoint that was taken within the study, the innovative research design, how Phase 1 contributed breadth to the overall research, how Phase 2 contributed a level of life-world depth to the findings, the cohesion between each of these two stages, what this research has added to the field of mixed methods, and the benefits and challenges of using a mixed methods approach as opposed to using a single research method in isolation.

Mixed Methods Research

Mixed methods research is, by definition, the practice of collecting, analyzing, and combining qualitative and quantitative data within a single cohesive study for the purpose of gaining a more holistic understanding of a specific research problem or area of study (Cresswell, 2003; Tashakkori & Teddlie, 2003). Recent years have seen a large increase in the number of studies that claim to have adopted a mixed methods research design. This rapid augmentation of mixed methods research has been a driving factor behind the development of a journal that is entirely dedicated to this methodological approach (*The Journal of Mixed Methods Research*) and the increase in the number of publications relating to the relevant methodological issues. Notably, one of the key publications within the field is *The Handbook of Mixed Methods in Social and Behavioral Research* (Tashakkori & Teddlie, 2003), which provides a theoretical and practical guide to assist individuals wishing to use and develop mixed methods research.

A common motivation for conducting mixed methods research is that neither method used individually would be sufficient to effectively handle the research problem in terms of breadth and depth, commonalities and details (Ivankova, Creswell, & Stick, 2006). Thus, the justification

for using a mixed methods approach is that by combining or mixing a number of methods within a single study will help broaden the dimensions and scope of the research, allowing for a more robust explanation of the processes being investigated and, ultimately, the development of a more holistic picture of human behavior (Morse, 2003). Although mixed methods research has gained popularity in a wide range of fields, health researchers have been especially interested in combining different methods as this approach has huge potential for handling the complexity of different factors that influence health (Morgan, 1998; Morse, 1991; O'Cathain, 2009).

Even though mixing multiple methods within a single study has the potential to provide a more holistic understanding (Cresswell, 2003; Morse, 2003; Tashakkori & Teddlie, 2003) and an additional level of breadth and depth (Ivankova et al., 2006), conducting mixed methods research also raises numerous potential obstacles for the researcher. According to Tashakkori and Teddlie (2003), examples of these methodological challenges include mixing "art" and "science," using a complicated "mix of words" that are taken from the "diverse worlds they represent" (p. 329), justifying and articulating the purpose of mixing, and in terms of presenting the work coherently and appropriately.

Furthermore, despite the obvious vast potential for mixed methods research to provide researchers with the opportunity to effectively tackle individual elements of a complex phenomenon within a single project, the pathway to the emergence of mixed methods research as a valid and respected research approach within the academic community has been, and continues to be, fraught with obstacles. Throughout the development and popularization of mixed methods research, both qualitative and quantitative purists have explicitly advocated their adopted paradigm as superior for conducting research and rejected the possibility that different approaches could coexist within a single research project. This argument is the underlying concept behind the incompatibility thesis (Howe, 1998), which suggests that qualitative and quantitative methods are incommensurate and therefore should not be combined within a single study. These beliefs are grounded in the reality that qualitative and quantitative methods are each based on different paradigms, which both have a different set of assumptions concerning reality (ontology), opposing ideas on the knowledge of that reality (epistemology), and separate ways of knowing that reality (methodology; Guba, 1990). Quantitative research is based on the positivist scientific paradigm, whereas qualitative research is rooted within the interpretivist/constructivist paradigms. The ontological position of the quantitative paradigm suggests that there is a single truth and an objective reality, whereas the interpretivist/constructivist paradigms assume multiple truths based on an individual's own construction of reality. In addition, epistemologically speaking, quantitative research suggests researcher and respondent are independent, therefore ensuring objectivity, whereas qualitative research details that reality does not exist independently of our own minds, therefore positioning the researcher within the research.

Although some mixed methods studies adopt mixing strategies uncritically without concern for the differences between the underlying paradigms (Sale, Lohfeld, & Brazil, 2002), mixed methods researchers are increasingly developing and adopting techniques that honor paradigmatic differences when combining qualitative and quantitative research. To clarify that a paradigmatically appropriate mixing strategy was used within the present study, the philosophical approach to the mixing methods from different paradigms will now be outlined.

The philosophical approach adopted by the present study was methodologically based on reformed notions of complementarity as a motivation for combining qualitative and quantitative research methods to produce work that is both practically and philosophically sound. This stance reflects the work of Sale et al. (2002), which builds on the earlier research into complementarity (Greene, Caracelli, & Graham, 1989; Morgan, 1998). These authors discuss engaging in mixing of qualitative and quantitative approaches to view a specific phenomenon using different perspectives to build up a clearer picture of the whole, therefore justifying the use of different methods. More recently, Tashakkori and Teddlie (2008) have discussed the multiple "purposes of mixed methods" (p. 103) as outlined in previous literature. They explain that studies citing

complimentarity as a motivation for mixing generally use the approach to ascertain complementary views regarding a phenomenon. They also explain that the research questions for different phases of the research will ultimately address related aspects of the same phenomenon.

Although complementarity is a popular philosophical justification for the mixing of qualitative and quantitative methods, Sale et al. (2002) suggest that traditional notions of complementarity are not advisable for mixed methods research if the ultimate goal is to study different aspects of the same phenomenon. They justified this idea by explaining that, philosophically, methods from different paradigms are unable to answer research questions in the same way due to the phenomenon under study failing to be consistent within qualitative and quantitative paradigms. For example, although a quantitative questionnaire may "measure" the prevalence of certain behaviors, a qualitative phenomenological approach would provide an "in-depth description" of lived experience. To reform traditional notions of complementarity into a paradigmatically considerate approach, Sale et al. (2002) suggest using a mixed methods approach that acknowledges and respects paradigmatic differences, while still allowing for the combination of different methods within a single study. They note the importance of accepting that qualitative and quantitative research will inevitably look at different phenomena within the same research area, and therefore suggest that that the explicit phenomenon examined by each method must be explicitly labeled to state and emphasis the paradigmatic differences in qualitative and quantitative research. The utilization of this approach within the current study allowed paradigmatically opposing methodologies to be combined within a single project in order to provide a multidimensional understanding of a complex phenomenon, while still honoring epistemological and ontological differences.

The Research Design

The research design was developed pragmatically to produce a methodological structure capable of satisfying the study's aims in terms of breadth and depth. A sequential approach was adopted to ensure that the broad data retrieved within Phase 1 would be able to help orientate the focus of Phase 2 of the study, therefore ensuring cohesion between the two stages of the research. This design also allowed the data from the two research phases to be combined within a joint discussion to ensure a level of methodological complementarity and a more holistic picture of the phenomenon (Cresswell, 2003; Morse, 2003; Tashakkori & Teddlie, 2003).

Figure 1 demonstrates the model that was developed for use within the current study. In the following sections, details about the role of each phase in terms of the specific contribution to the overall study will be provided, alongside an outline of some of the findings from each phase of the research project.

Phase 1

The overarching aim of Phase 1 of the study was to provide a breadth of data, which could be used to measure the prevalence of OHI seeking and the characteristics and outcomes of the experience to make a significant contribution to the field of CHI. The data could then be used to provide a level of quantitative depth to the overall discussion alongside in-depth Phase 2 data, to facilitate the emergence of a more complete picture of the phenomenon. The questionnaire was designed to collect information from the participants within the following themes:

1. How people make choices about locating OHI
2. How they decide if it is reliable
3. What they do with OHI after they find it
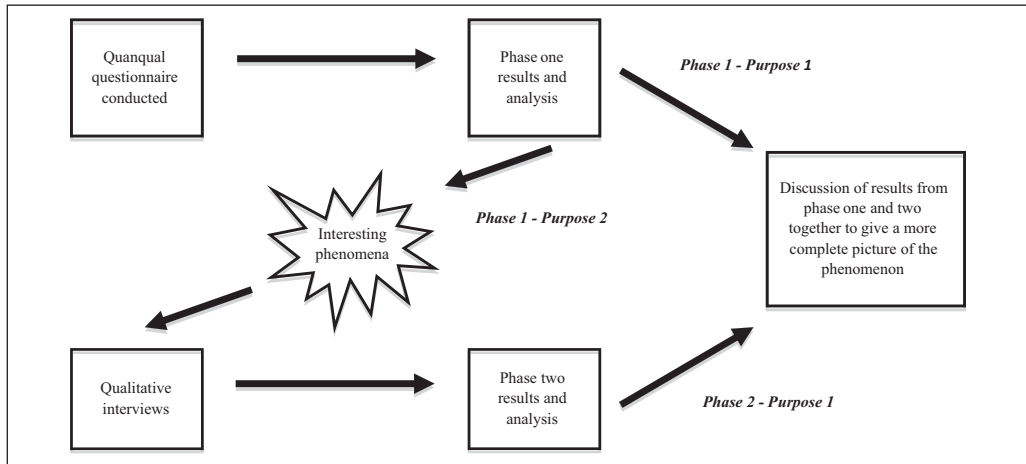4. How OHI influences decision making

Figure 1. Mixed methods research design

5. How individuals perceive the response from others to their online information-seeking behavior

The additional inclusion of a number of open questions within the Phase 1 data collection tool allowed the elaboration of quantitative data and facilitated the emergence of interesting phenomena to identify a relevant phenomenological focus for Phase 2 of the research.

During Phase 1, the questionnaires were collected from 100 individuals attending U.K. support groups for chronic health conditions. Participants were provided with a usage questionnaire if they had experience in using OHI and with the nonusage questionnaire if otherwise. The quantitative findings were then analyzed using nonparametric statistics due to the nature of the data and the sample size. The minimal qualitative data were analyzed thematically and presented alongside the quantitative data to provide a broader picture of Phase 1 results.

As the focus of this article is methodological, it would not be appropriate to provide a full description of the results from Phase 1 of the study. To provide an example of the knowledge produced within this stage, the findings pertaining to one key theme of Phase 1 will be presented below.

Phase 1 Findings

Age and OHI seeking. The quantitative Phase 1 data demonstrated that individuals who sought OHI were significantly more likely to be younger than those who did not, $U(98) = 518.5$, $p < .01$. Specifically, the mean age of the nonusage group (69.13 years, range = 44-89, standard deviation [SD] = 9.416, median = 70 years, mode = 75 years) was 22.5% higher than the usage group (56.42 years, range = 30-84, SD = 12.51, median = 59 years, mode = multiple). Furthermore, thematic analysis of the open questions within the Phase 1 nonusage questionnaire allowed for the identification of increasing age as a factor that is perceived to negatively affect OHI-seeking behaviors:

At my age see little point.

Too old.

Quantitative analysis of Phase 1 data revealed a difference in the OHI-seeking outcomes for older adults compared with younger individuals. The statistical analysis demonstrates that older

adults were less likely to feel OHI seeking increased confidence in their health care decision making, $U(42) = 69.50$, $p < .01$. Furthermore, the analysis also show that older adults were less likely to feel OHI seeking increased confidence in discussing their health with professionals, $U(43) = 116$, $p < .05$. Finally, the quantitative data also demonstrated that older adults were less likely to become motivated to share OHI with others, $U(43) = 144$, $p < .05$.

Some additional key findings from Phase 1 will now be briefly summarized to indicate the range of findings produced by Phase 1 that were used to help build the overall discussion and identify the relevant phenomenological focus for Phase 2 of the research project.

Description of the sample. Basic demographic data were collected from all participants to allow for effective quantitative summarization and to provide an accurate description of the sample. Results demonstrated that 63% ($n = 63$) of the participants were female and 37% ($n = 37$) were male and that the mean age of participants was 63.41 years (range = 30-89 years, $SD = 2.58$, mode = 75, median = 64). In addition, 54% ($n = 54$) of the participants had no formal educational qualifications, whereas 15% ($n = 15$) cited GCSE or equivalent as their highest educational qualification, 1% ($n = 1$) A-level or equivalent, 5% ($n = 5$) GNVQ or equivalent, 8% ($n = 8$) HND/diploma, 11% ($n = 11$) to degree level, 4% ($n = 4$) master's, and 2% ($n = 2$) PhD. The participants had been diagnosed with a variety of chronic conditions and frequently had been diagnosed with multiple conditions. The length of time since diagnosis also varied greatly within the sample (mean = 11.88, range = 1-45 years, $SD = 9.56$, median = 8, mode = multiple). Finally, the majority of the participants perceived themselves to be in good health, with only 34% ($n = 34$) stating that their health was considered fair or poor.

Locating OHI. The results from the current study demonstrated that 60% ($n = 60$) of the participants had previously used the Internet, and 75% ($n = 45$) of these users had used it to locate OHI. Of the OHI users 77.8% ($n = 35$) agreed that it was easy to find OHI, with 33.3% ($n = 15$) stating that they relied on referrals to locate useful and relevant information. These results demonstrated that although the majority of OHI seekers felt that they could locate OHI easily, some individuals were still struggling with the process. A number of participants noted that advice and referrals from health care professionals would help them locate quality OHI, in addition to advertising within hospitals (on wards), advice from surgeries, and distribution of leaflets containing information regarding recommended websites.

OHI quality. Additional analysis of the Phase 1 data demonstrated that although most participants agreed that OHI was easy to find, the majority of OHI users, 64.5% ($n = 29$), felt that the quality of OHI needed to improve. Furthermore, only 56.8% ($n = 25$) of OHI users stated that they felt able to accurately assess OHI quality.

The role of health professionals. Phase 1 results demonstrated that health professionals were cited as the main source of health information for the majority of OHI users (64.4%, $n = 29$) and nonusers (61.8%, $n = 34$). However, only 34.1% ($n = 14$) of OHI seekers agreed that their health care professional reacted positively to them bringing OHI into the consultation, signifying a possible area of contention. The inclusion of open-ended questions allowed for the elaboration of this answer and revealed that some participants felt that this behavior may have the potential to "undermine" professionals.

Sharing OHI. Although the social nature of the OHI-seeking experience was indicated by the number of OHI users who were referred by others to OHI (33.3%, $n = 15$), participants noted receiving mixed reactions from others to them sharing OHI. Respondents noted that their experiences were not always consistent:

> Sometimes with interest, sometimes with skepticism, sometimes with shock and anger that this information wasn't made available to them by their health-care professional.

The positive responses outlined by participants included others showing general interest in the products of their OHI seeking, the information located provoking further discussion, and encouraging supportiveness between individuals. As well as citing skepticism and shock as negative examples of reactions experienced from others, participants also noted encountering concerns about cost and the subjectivity of OHI, as well as demonstrating apprehension about the lack of a guarantee.

Focusing

The Phase 1 data and background literature (Arora & McHorney, 2000; Belcher, Fried, Agostini, & Tinetti, 2006; Cotten & Gupta, 2004; Fox, 2001) provided a strong justification for further research into the OHI-seeking experience of older adults. These findings helped identify the topic as an appropriate and relevant phenomenological focus for Phase 2 of the study and, by doing so, fulfilled one of the key purposes of the preliminary phase. This emergence ensured that relevance and appropriateness were maintained to a high degree throughout the research process. Without the inclusion of Phase 1, the research would have focused on researcher preference, or the limited U.K.-based information available relating to the OHI-seeking experience. Therefore, the sequential mixed methods approach that was used within this study allowed for the orientation of an appropriate experiential focus, which could not have been achieved through a single-stage research project, thus providing value to the overall study.

The proceeding will demonstrate the role of Phase 2 within the overall methodological design and provide an example of the data produced within this stage.

Phase 2

The main objective of Phase 2 of the research project was to obtain in-depth qualitative descriptions of the OHI-seeking experience for older adults, with reference to six appropriate and specific experiences that were outlined as relevant by Phase 1 of the research project.

To develop Phase 2 qualitative interviews in line with the emergent experiential focus, a parallel sample of support group members aged 60 years and older with OHI-seeking experience were purposefully sampled for the interviews. A parallel sampling technique was adopted so that participants were selected based on the initial recruitment criteria to aid joint discussion of the two phases. Participants from the Phase 1 sample were not included as it was hypothesized that they may have existing knowledge or preconceptions regarding the research that may cause bias. The Phase 2 sampling process revealed six suitable and willing candidates for interview. They were asked to provide descriptions of six different types of OHI-seeking/sharing experiences, which were identified as relevant by an analysis of Phase 1 qualitative and quantitative data. The six types of OHI-related experiences as identified by Phase 1 were as follows:

1. The experience of not being able to find health information online
2. The experience of finding poor-quality health information online
3. The experience of online health information helping participants understand something better
4. The experience of online health information increasing participants' confidence
5. The experience of sharing online health information with a health professional
6. The experience of sharing online health information with others

These data were then analyzed using Giorgi's descriptive phenomenological method (Giorgi, 1985, 2009; Giorgi & Giorgi, 2004) to provide a rich description of the commonalities and differences between and within participants' lived experiences.

Giorgi's Descriptive Phenomenological Method

Giorgi and colleagues (Giorgi, 1985, 2009; Giorgi & Giorgi, 2004) have developed a systematic procedure for analyzing descriptive phenomenology that has become popular with researchers within a wide range of disciplines, such as nurses, sociologists, and anthropologists. This method was adopted as it provides clear and logical stages that must be conducted to achieve a full descriptive–phenomenological analysis. These are the following:

1. Obtaining rich life-world descriptions
2. Reading the transcriptions thoughtfully to get a narrative sense of the text as a whole piece
3. Dividing the descriptions up into units, signifying changes in meaning—"meaning units"
4. Expressing the sense of each meaning in a general manner
5. Developing a "structure" that integrates the common meanings throughout all life-world descriptions
6. Opening out the structure and elaborating on the common themes from within by using original participant data to develop the richness of the analysis; it also provides an opportunity to discuss the unique ways that each theme was experienced by participants

Findings

Five phenomena emerged from the analysis of Phase 2 interviews. These were as follows:

- *Responsibility*: The OHI-seeking experience for older adults was an explicit demonstration of their intention to take control of their health or the health of a loved one.
- *Expectations*: The success of an OHI-seeking experience was judged by the extent to which the resulting information was perceived to fulfill the expectations of the individual engaging in the seeking behavior.
- *Confidence and concern*: Older adults demonstrated a sense of confidence in their ability to discern OHI and a concern for others to do the same.
- *Selective sharing*: Positive OHI-seeking experiences lead to individuals feeling empowered to share relevant OHI. Negative experiences were signified by the OHI reaching 'the end of the line" and going no further in terms of sharing.
- *Reactions and reinforcement*: Positive reinforcement from others lead to the development of information sharing networks. Negative reactions were likely to have the opposite effect and therefore inhibit the development of regular sharing networks.

Similar to the presentation of the previous phase, one detailed example of a single theme identified within the data from Phase 2 will be presented to serve the methodological concern of the current article and demonstrate how the two phases worked together to contribute to a more holistic understanding.

Confidence and Concern

The descriptive phenomenological analysis demonstrated that participants had overwhelming confidence in their abilities to search and apprise OHI. Furthermore, one of the key features of this confidence was a concern for others to do the same. For example, Claire and Edward

(pseudonyms) both emphasized the importance of judgment to discern quality OHI, a personal trait that they both perceived to possess:

> Because I'm fairly rational, and because I've worked in health and social care, and because I tend to question things until I've got the right answer, I didn't get hung up on it. But I think it's very easy to do that. (Claire)

Participants demonstrated a sense of immunity to the effects of poor-quality OHI and perceived having a greater ability than others in terms of their search and appraisal skills. In addition, participants demonstrated further confidence in their OHI-seeking abilities by stating their intentions to take responsibility for their health and outlining their perceived ability to effectively seek OHI to help them do this. Participants also identified that they had expectations in terms of OHI, suggesting a level of confidence in their ability to effectively appraise quality and make judgments.

The lived experiences also demonstrated that these older adults also experienced confidence as a product of the OHI-seeking experience in terms of their ability to make decisions regarding their health and treatment regimes:

> It gave me relief. . . . It gave me confidence to think right, I will take this drug. Because I must be honest, I'd had the prescription made up for 3 months and I hadn't taken the drug. Because that was just fear. (Denise)

> And I found what I needed. And I was more confident to make the decision to have Brachy therapy. (Brian)

In summation, Phase 2 data demonstrated that one of the common features of the experience of OHI seeking in older adults with chronic health conditions was their perceived sense of personal confidence. This was expressed in terms of participant's confidence in their ability to search and appraise OHI and as a product of the OHI-seeking experience, which actively assisted in them making health and treatment decisions.

To provide an example of the nature of this joint discussion, the findings from Phases 1 and 2 presented above will now be discussed together to give a richer description of the phenomenon.

Integration

The Phase 1 data painted a bleak picture of the OHI-seeking experience for older adults with chronic health conditions. As previously stated, statistical analysis confirmed increasing age as having a negative effect on levels of OHI seeking and identified that older adults were less likely to perceive the positive outcomes of OHI seeking than younger individuals. However, Phase 2 in-depth data demonstrated examples of older adults with chronic health conditions confidently engaging with the OHI-seeking process and perceiving the positive outcomes of this behavior. These findings together suggest that although it is commonplace for older adults to perceive age as a barrier to OHI seeking, with many stating that they were "too old" to be involved in this behavior, those older adults engaging with this activity perceived being able to search and appraise OHI effectively, and were experiencing the positive outcomes of OHI seeking. When viewed together, findings suggest that although increasing age may be perceived as an obstacle to effective OHI seeking, in reality this was not consistently the case for all OHI seekers. These findings provide a much clearer picture of the complex phenomenon of OHI seeking than could have been achieved by adopting a single qualitative or quantitative method in isolation, therefore justifying the adoption of a mixed methods research approach.

Conclusion

The Phases 1 and 2 data demonstrate how the methodological approach ensured the fulfillment of the first purpose of Phase 1. To reiterate, the primary purpose of Phase 1 was to provide a breadth of data relating to the phenomenon of OHI seeking for adults with chronic health conditions in order to offer a description of the current landscape and identify a relevant phenomenological focus for Phase 2 of the study. The second purpose of Phase 1 was to provide a breadth of information relating to the field, suitable for discussion alongside the rich phenomenological data from Phase 2 of the study. Furthermore, the sole purpose of Phase 2 was to produce this depth of information to bring texture to Phase 1 findings. This combination of breadth and depth within the joint discussion has provided a level of cohesion to the methodological approach and has helped provide a more holistic picture of the phenomenon. In addition, the methodological approach has also helped maintain a relevant and appropriate focus for the research and has facilitated multiple forms of expression through the use of relevant discourses associated with qualitative and quantitative research.

It would be misleading to suggest that the adoption of the methodological approach was without its challenges. Throughout the research project, there were significant obstacles in terms of establishing and maintaining a consistently clear methodological standpoint, moving between methodologies, presenting data, overcoming objections, and dealing with inherent time constraints. However, despite all these challenges, the mixed methods approach adopted within the study facilitated the exploration of different aspects of the phenomenon to produce a more holistic discussion and a more appropriate phenomenological focus for the research. Specifically, the methodological value of the study can be expressed in terms of the provision of both breadth and depth of data relating to the phenomenon of OHI seeking and the maintenance of a relevant and appropriate emergent focus throughout the research. An additional contribution of the mixed methods approach was made by the facilitation of multiple forms of expression, by enabling differing yet complementary styles of presentation to coexist and by providing an accurate reflection of the multifaceted nature of the phenomenon being studied. As well as providing a wealth of data relating to the field of CHI, the innovative approach adopted also makes a valuable and unique contribution to the field of mixed methods research by providing a philosophically sound example, demonstrating an innovative research design and mixing procedure, and by promoting mixed methods research through discussion and dissemination.

In summation, although conducting mixed methods research presents numerous challenges, it also provides countless rewards in terms of the holistic nature of the data produced. Ultimately, without using this methodological approach, the current study would have not been enriched by the emergent focus and breadth and depth of data that this model provided. In addition, a single-stage project attempting to study this relatively underresearched phenomenon would have run the risk of producing data that had a lack of relevance or significance or data that showed one potentially misleading aspect of a complex phenomenon. This research article therefore provides a potential model for future studies wishing to use a sequential mixed methods approach to ensure breadth and depth as well as topical relevance. Finally, this form of mixed methods research makes a unique methodological contribution by providing a philosophically sound example of mixed methods research, demonstrating the opportunities for pragmatism, showing an innovative mixing procedure, and promoting mixed methods through presentation and dissemination.

Appendix A

Link Between Research Questions and Questionnaire

Table A.1 shows how the questions in the usage questionnaire relate to the key themes outlined as the objectives of Phase 1 of the study.

Table A.1. How Questions Relate to Themes in the Usage Questionnaire

Key Theme	Questions
Internet usage/online health information usage	How often do you use the Internet?
	Apart from to seek health information, what do you use the Internet for?
	Approximately how often do you use the Internet to seek health information about your condition?
	Does the amount that you use the Internet to seek health information vary?
	If yes, please indicate which factors make you use the Internet to seek health information more/less
	What are your reasons for seeking health information online?
	What do you feel is the most important source of health information for you? (Included to use as a demographic comparison with non-usage)
How people make choices about how they find information	To what extent do you agree with the following statement: "It's easy to find useful and relevant health information on the Internet"
	Do you ever use search engines to find health information online? If yes, which ones have you used?
	Have you ever been referred to online health information? If so, who was it by?
	What do you think might help you be more able to locate health information online?
How they decide if it is quality information	To what extent do you agree with the following statement: "The quality of health information on the Internet needs to improve"
	Do you feel that you are able to accurately assess the quality of online health information?
	What factors do you consider when assessing website quality?
	What do you feel would increase your ability to assess the quality of online information?
How they use the information after they find it	What do you do with online health information once you have found it?
	If you do print it off to show others, who do you show it to?
How participants perceive the response from others to an information-enabled patient	To what extent do you agree with the following statement: "Bringing online information with me improves my consultations with health professionals"
	To what extent do you agree with the following statement: "In my experience, health professionals react positively to me bringing online information into the consultation"
How the information affects you and influences decision making	Does seeking health information online make you feel more confident to make decisions about your healthcare?
	Why is this?
	Does seeking online health information make you more confident about discussing your health and treatment regime with health professionals? (Tick one)
	Has the information that you have found on the Internet assisted in you making decisions about . . .

(continued)

Table A.1. (continued)

Key Theme	Questions
Demographics	Please indicate which of the following conditions you have been diagnosed with
	Please indicate the approximate length of time in years and months since you were diagnosed
	In general, would you say your health is . . .
	Have you ever been involved in an NHS Expert Patient Program?
	Have you ever been involved in any other illness self-management program?
	If so, please give details:
	Gender
	Age
	Please indicate your highest educational qualification

The nonusage questionnaire was developed to provide a holistic view of the area of study and to avoid limiting the possible outcome phenomena with regards to OHI seeking. Table A.2 shows how the questions in the nonusage questionnaire relate to the objectives of the study.

Table A.2. How Questions Relate to Themes in the Nonusage Questionnaire

Key Theme	Questions
Internet usage	Have you ever used the Internet?
	How often do you use the Internet?
Identifying barriers to the Internet	Why have you never used the Internet?
Identifying barriers to OHI	What do you use the Internet for?
	Why don't you use the Internet to access online health information?
Identifying possible resolutions	What would make you more likely to use the Internet to access online health information?
Demographics	Please indicate which of the following conditions you have been diagnosed with
	Please indicate the approximate length of time in years and months since you were diagnosed
	In general, would you say your health is . . .
	Have you ever been involved in an NHS Expert Patient Program?
	Have you ever been involved in any other illness self-management program?
	If so, please give details:
	Gender
	Age
	Please indicate your highest educational qualification

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

References

Arora, N. K., & McHorney, C. A. (2000). Patient preferences for medical decision making: Who really wants to participate? *Medical Care*, *38*, 335-341.

Belcher, V. N., Fried, T. R., Agostini, J. V., & Tinetti, M. E. (2006). Views of older adults on patient participation in medication-related decision making. *Journal of General Internal Medicine*, *21*, 298-303.

Cotten, S. R., & Gupta, S. S. (2004). Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine*, *59*, 1795-1806.

Cresswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed method approaches.* Thousand Oaks, CA: Sage.

Eysenbach, G. (2000). Consumer health informatics. *British Medical Journal*, *320*, 1713-1716.

Fox, S. (2001). *Wired seniors: A fervent few, inspired by family ties*. Washington, DC: Pew Internet & American Life Project. Retrieved from http://www.pewinternet.org/~/media//Files/Reports/2001/PIP_Wired_Seniors_Report.pdf.pdf

Giorgi, A. (1985). Sketch of a psychological phenomenological method. In A. Giorgi (Ed.), *Phenomenology and psychological research* (pp. 8-22). Pittsburgh, PA: Duquesne University Press.

Giorgi, A. (2009). *The descriptive phenomenological method in psychology: A modified Huessrlian approach.* Pittsburgh, PA: Duquesne University Press.

Giorgi, A., & Giorgi, B. (2004). The descriptive phenomenological psychological method. In P. M. Camic, J. E. Rhodes, & L. Yerdley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design* (pp. 243-273)*.* Washington, DC: American Psychological Association.

Greene, J., Caracelli, V., & Graham, W. (1989). Toward a conceptual framework for mixed-method evaluation design. *Educational Evaluation and Policy Analysis*, *11*, 255-274.

Guba, E. G. (1990). The alternative paradigm dialog. In E. G. Guba (Ed.), *The paradigm dialog* (pp. 17-30). Thousand Oaks, CA: Sage.

Howe, K. R. (1988). Against the quantitative-qualitative incompatibility thesis or dogmas die hard. *Educational Researcher*, *17*, 10-16.

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, *18*, 3-20.

Morgan, D. L. (1998). Practical strategies for combining qualitative and quantitative methods: Applications to health research. *Qualitative Health Research*, *8*, 362-376.

Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, *40*, 120-123.

Morse, J. M. (2003). Principles of mixed method and multimethod research design. In A. Tasakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 189-208)*.* Thousand Oaks, CA: Sage.

O'Cathain, A. (2009). Editorial: Mixed methods research in the health sciences—A quiet revolution. *Journal of Mixed Methods Research*, *3*(1), 3-6.

Office for National Statistics. (2009). *Internet access 2009: Households and individuals*. Retrieved from http://www.statistics.gov.uk/pdfdir/iahi0809.pdf

Sale, J. E. M., Lohfeld, L. H., & Brazil, K. (2002). Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality & Quantity*, *36*, 43-53.

Tashakkori, A., & Teddlie, C. B. (2003). *Handbook of mixed methods in social & behavioral research.* Thousand Oaks, CA: Sage.

Tashakkori, A., & Teddlie, C. (2008). Quality of inferences in mixed methods research: Calling for an integrative framework. In M. M. Bergman (Ed.), *Advances in mixed methods research* (pp. 101-119). London, England: Sage.