Escaping Information Poverty through Internet Newsgroups

Laura Hasler and Ian Ruthven

University of Strathclyde, Department of Computer and Information Sciences, Glasgow G1 1XH
{Laura.Hasler, Ian.Ruthven}@cis.strath.ac.uk

Abstract

This paper presents an ongoing investigation into how people use the Internet in an attempt to escape situations of information poverty. We consider posts from a variety of newsgroups which indicate that individuals feel they have nowhere else to go to find information or support for concerns crucial to their everyday lives. A qualitative content analysis is performed to examine three main issues: what information needs people posting to these groups have, who they hide these needs from in the 'real world', and why they feel they can only express their needs online. Preliminary findings show that information on health and relationships is most commonly sought. Needs are most often hidden from parents and family, and the main reasons for seeking information online are a lack of understanding and the fact that people simply don't know where else to go. Our work confirms that newsgroups provide a means of expression for those who feel they have no local support available to them.

1. Introduction

Information poverty (Chatman 1996) is demonstrated by an unwillingness to approach people in one's usual social environment for information, along with engaging in secrecy and deception to hide information needs from those who might be able to help. Social norms dictate the types of information which may and may not be sought, and often individuals will not risk revealing certain information needs because of the potential negative impact on their lives. The result is that people see themselves as devoid of information sources even though there may be support available. Early work (Chatman 1996) was carried out in physical environments, focusing on how people in certain communities create situations of information poverty rather than how they try to extricate themselves from it. More recent studies also focus on specific groups, and where Internet use is considered, it is seen as part of the wider process of information seeking (Hamer 2003, Veinot 2009). Information needs which are not expressed in situations of information poverty are often crucial to the individual and relate to health, identity and social issues.

The Internet provides both anonymity and a source of information and support which may not be available elsewhere (e.g. McKenna and Bargh 1998, Davison, Pennebaker, and Dickerson 2000), making it a prime candidate to help people escape their situation of information poverty. There have been many studies on information and support behaviour in specific online communities and how members benefit from group interactions (McKenna and Bargh 1998, Klaw, Huebsch, and Humphreys 2000, Meier et al. 2007, Eichhorn 2008). However, the use of social media such as newsgroups as the only means of escaping information poverty has not been explicitly addressed.

This paper presents an ongoing investigation into how information poverty manifests on the Internet, focusing on information sought via newsgroups. We are interested in cases where members of these groups actively seek information and support, rather than just use what is already available online, and where the people who post feel that they have no other sources of help available to them. Unlike most previous studies, we do not restrict our analysis to specific groups, instead considering posts from across Usenet and other discussion groups. We perform a qualitative content analysis to explore three main issues:

- Topics which newsgroup posters seek information about
- Who posters hide their information needs from
- Why posters feel they can only seek this type of information online.

Taking a qualitative approach allows us to dig beneath the surface of this use of a particular type of social media for crucial information and support seeking purposes, uncovering elements which may otherwise be missed.

2. Related Work

As indicated in the previous section, related work can be classified into two main strands: research dealing with the

concept of information poverty and research on using online communities to seek information and support. Each strand is addressed separately below.

2.1 Information Poverty

The theoretical framework for our research is the theory of information poverty (Chatman 1996), which provides an account of the information world of poor people in various communities. Chatman considers information behaviour of janitors, retired women and employment scheme women, drawing on the sociological concept of insider/outsider and building on her earlier work on economically poor groups and information (Chatman 1991, 1992). Information poverty is built around four concepts: secrecy, deception, risk-taking and relevance. Six propositions related to these concepts are specified in order to describe an impoverished information world (Chatman 1996: 197-198):

1. People defined as information poor perceive themselves as devoid of any sources that might help.

2. Information poverty is partially associated with class distinction – it is influenced by outsiders who withhold access to privileged information.

3. Information poverty is determined by self-protective behaviors used in response to social norms.

4. Both secrecy and deception are self-protecting mechanisms due to mistrust regarding the interest or ability of others to provide useful information.

5. A decision to risk exposure about our true problems is often not taken due to a perception that negative consequences outweigh benefits.

6. New knowledge will be selectively introduced, and this process is influenced by the relevance of that information to everyday problems and concerns.

To illustrate, Chatman found that retired women would not tell anyone (including their own children) their concerns about declining health or feelings of loneliness for fear of being thought unable to cope and being forced to leave the retirement village. They kept their concerns secret and actively engaged in deception to pretend they did not have any problems, appearing to adhere to social norms to protect themselves from the risk of a negative impact on their lives. When the women did talk to caretakers, they did not trust the advice given, or deemed it irrelevant. Most relevant to them was maintaining positive relationships with their children and being able to stay in the village, so information they sought and shared worked towards this.

Related studies using information poverty for research on information behaviour have also focused on specific groups and been carried out mainly in physical environments. Internet use is considered, if at all, as part of the wider process information seeking (Sligo and Jameson 2000, Spink and Cole 2001, Hamer 2003, Veinot 2009). Veinot (2009) looks at stigma management and information poverty in relation to the use of information/help networks by people with HIV/AIDS. She found that many respondents engaged in secrecy, and some in deception, to protect themselves and their loved ones from possible negative judgements. They minimized the extent of their networks rather than taking the risk of disclosing information about their situation. However, respondents did not see themselves as completely devoid of sources of support. Some people preferred to seek help from a distance or anonymously (including via the Internet), rather than asking local providers, to try to protect themselves.

Hamer (2003) uses information poverty to examine his findings about barriers and challenges in the information seeking behaviours of young gay men around coming out and gay identity. This group reported concealing their information seeking activities due to potential negative consequences such as losing friends or being forced to leave home. Using the Internet (chat rooms, online groups, etc.) to interact with other young gay adults was the most popular form of information seeking due to the relative anonymity it allows, as well as the opportunity to connect with others in similar situations. Respondents also engaged in other types of information seeking such as watching television, reading books and magazines, and visiting gay bars. The results reflect four of Chatman's six propositions, relating to a lack of resources, self-protective behaviours, not taking the risk of revealing a need due to negative consequences, and a mistrust of outsiders in providing useful information. This study is most similar to ours because it considers Internet use in the context of information poverty, and as a popular means of support where few others are available.

As demonstrated above, applying this theory to different situations or groups can uncover new issues, or focus on only some of those previously identified. Therefore we use it to guide our analysis by drawing on the most relevant concepts, rather than adhering rigidly to every aspect of it.

2.2 Seeking Support in Internet Groups

The anonymity afforded by the Internet has been cited as a critical reason for its use in seeking support and information (e.g. McKenna and Bargh 1998, Hamer 2003). It also has the benefit of bringing together geographically disparate people based on common interests and values where these sources may be otherwise unavailable. There are numerous studies on specific online communities; we summarize a small number below in an attempt to demonstrate the types of group and support investigated.

Davison, Pennebaker, and Dickerson (2000) found that illness groups were popular with people suffering from debilitating and disfiguring conditions, perhaps because of the practical problems of physically meeting up as well as

enabling anonymity. The groups were also favoured by sufferers of diseases poorly understood by the medical community (cf. Lasker, Sogolow, and Sharim 2005). Meier et al. (2007) report a prevalence of informational support being sought across ten cancer mailing lists, with participants joining specifically to seek information. The topics most frequently discussed were treatment and how to communicate with healthcare providers. Sharing experiences and information with others was also viewed as important. Rodgers and Chen (2005) discuss psycho-social benefits of participating in such a group, pointing out that there is much more to be gained than information alone.

A group for problem drinkers is examined by Klaw, Huebsch, and Humphreys (2000) to establish whether the supportive nature of groups depends on the problem being discussed. Their results showed similar patterns of friendly and supportive interactions to several other group studies (sexual abuse, caregiving, depression) despite the aggressive and antisocial connotations of alcohol abuse: self-disclosure of personal experiences and offers of information, advice and emotional support were common features. Eichhorn (2008) describes how sufferers of anorexia and bulimia use Internet groups for anonymous social support due to the negative stigmatization of their eating disorders in society. She reports on the types of support communicated, as well as how information is sought, and found that sharing experiences to solicit information occurred twice as often as using requests. Informational and emotional support were the most common types given, and providing encouragement and feedback emerged as prominent themes. Also related to stigmatization, McKenna and Bargh (1998) consider the 'demarginalization' of certain identities through Internet group participation. This study again highlights the beneficial nature of online group interaction and talking to others in similar situations, which here led to greater self-acceptance and in some cases coming out to family and friends after years of secrecy.

Much of this work discusses the dual nature of Internet groups in terms of seeking and providing informational and social/emotional support. Together with opportunities for anonymity and meeting others experiencing similar things, this makes the Internet a valuable potential source of support for those suffering from information poverty.

3. Methods

Detecting information poverty in newsgroup posts is difficult because of the sheer amount of data available and the fact that posters do not always explicitly include content which can be used to identify this situation. It is necessary to start with explicit indicators (key phrases) which allow us to reliably pinpoint a number of suitable posts, and then to build on these to account for other possible expressions of the concept. This section presents the method used for data collection and our approach to coding for analysis.

3.1 Data Collection

Google Groups (http://groups.google.com/) provides the source of data for analysis in our project. The service supports Usenet newsgroups and other discussion groups, as well as containing an archive of Usenet groups dating back to 1981.[1] Groups can be searched through the interface using specified words or phrases, and results can be restricted by group, time, subject and author. As our aim is to consider as wide a range as possible of topics that people feel driven to the Internet to seek information about, we do not restrict the results returned by key phrase searches. We do not aim to provide a representative picture of the scale of information poverty on the Internet, but rather to gauge the kinds of things that people only feel comfortable asking about online regardless of which groups they belong to. Therefore we did not sample representatively from groups, but with the purpose of collecting posts on as many different topics as possible. Following Eysenbach and Till (2001), we only analyze posts from groups which are more likely to be considered 'public spaces'. Our data comprises posts from groups with over 100 members and which are publicly searchable without requiring registration.

Using Chatman's propositions as a basis, we formulated phrases which explicitly indicated that an information need was being hidden from potential sources. These were initially based on a small set of indicators of information poverty, capturing an inability to approach specific sources of information or support, such as *I cannot tell anyone*, *I cannot tell my friends*. We then included semantic and grammatical variants in the set: other verbs of communication (e.g. *ask*, *talk to*) and other typical sources (e.g. *parents*, *family*, *doctor*), and additional realizations of modals/auxiliaries (e.g. *can't*, *could never*, *will not*) as well as sources (e.g. *nobody*, *anybody*), resulting in full phrases such as *I will never tell my parents*, *could never ask my doctor*, *can't talk to anyone*. The posts identified were used to further expand the key phrase searches where appropriate, for example, leaving the potential source empty, or searching for *mom/mum* or *turn to* within phrases. In an attempt to capture posts which are less explicit in terms of hiding information from specified sources, we also searched for phrases suggesting that the poster was driven to the internet by a general lack of sources, such as *don't know where to turn*, *nowhere else to go* and variants.[2] Using our various key phrases to search Google Groups, we collected 442 posts suitable for further examination. When assessing the suitability of posts, we considered only those

[1] http://en.wikipedia.org/wiki/Google_Groups.

[2] At the end of the project our data will be offered for deposit and the documentation will include a list of all search phrases and variants used.

that actively sought information and demonstrated a perceived lack of other sources or hiding an information need. One clear example is a post by a 14 year old girl asking if abortion hurts and how much it costs because she cannot tell her parents or boyfriend that she is pregnant.

The posts were anonymized by removing or replacing with meta information (e.g. [NAME1], [DATE]) any details which may identify the author, such as email and IP addresses, signatures, person and business names, dates of birth, and detailed medical results. Each poster was assigned a numerical poster ID, which was kept in the post along with the date of posting, title and message content.

3.2 Coding for Content Analysis

Our coding aims to analyze the content of the information poverty posts in terms of which topics information is being sought about, which sources of support information needs are hidden from, and why posters feel that they cannot approach these sources for information or support. Both theory-informed and grounded codes are used for our analysis, which is carried out within the NVivo qualitative data analysis software. We started by pre-defining three broad top level codes informed by Chatman's theory of information poverty and our three areas of interest.

Topic-InfoNeed is used to code spans of text which indicate a topic about which the poster is seeking information and/or explicitly mention any help that posters are seeking related to that topic. The text does not need to be formulated as a question or request; there are many cases of people describing situations to solicit information or support or combining statements of self-disclosure with requests (cf. Eichhorn 2008). Example: *I tend to throw up my food after I eat a lot…I dunno why I do it…I did where a size 14 now wear a size 10. I still think I am fat. I want to stop, but I dont know how… Please tell me what I can do… I know this is so bad for me but how can I stop???*

Hidden-From codes spans detailing potential sources of support or information in their usual social environment that the poster is hiding their information need from. This can be one or several sources. Example: *I cant tell anyone my secret… I cant tell my mom what I am doing.*

Why-Online is applied to text spans which discuss why the poster feels they cannot approach potential sources in their usual social environment, and/or why they can only express this information need online. Example: *i cant talk to my family cause i dont want them to feel disappointed with me again. i cant let them down again after the support the have given me over the last couple of years.*

Taking a more inductive or grounded approach (Glaser and Strauss 1967) we carefully examined our posts and developed more fine-grained codes under each of the broader a priori ones. These sub-codes are based on the content of the posts and themes emerging from our collection, and range from topics such as health resources and sexuality to themes relating to a lack of understanding from potential sources of support (see Section 4). We employ a constant comparison approach, frequently comparing coded data and code descriptions to ensure that we accurately represent the data in our analysis, and refining the scheme as necessary. We also re-examine the data in light of any changes made to the scheme.

Individual posts are taken as the unit of analysis. Within each post, we use themes/topics as the unit of coding. Coding is not restricted to specific syntactic units such as sentences or paragraphs, or to a set number of units, but is applied to relevant spans of text encompassing important themes or topics within the posts. Posts will contain different amounts of coded data depending on which topics and reasons are discussed and how the poster presents their information. The posts display a variety of writing styles, which is to be expected given that they are produced by a wide range of people. Restricting coding to a specified syntactic unit, or to only one unit in the text, would mean that when we query the coded data we would either miss considerable amounts of relevant information, or retrieve text which is not relevant to a given code.

We initially developed/tested the coding approach and scheme on a subset of 25 posts from our collection before coding the remaining posts. To date 114 posts have been coded. Although only one coder formally coded the data, the approach and scheme were developed and discussed by both members of the project team. Both members have also been involved in reviewing the coded data.

4. Findings and Discussion

This section discusses our findings to date, based on an analysis of 114 currently coded posts. It is feasible for more than one sub-code to be assigned to posts under each top-level code as individual posters seek information on more than one topic, hide information needs from more than one source, and give more than one reason for using the newsgroup. However, for ease of presentation we give each broad code with its individual sub-codes. The percentage of posts coded with a particular sub-code is also shown to indicate how widespread it is in the data.

4.1 Topics and Information Needs

Our currently coded data covers 11 different topics that posters seek information about. Topics are kept as fairly broad categories, because our data comes from many different groups. Some topics are much more prevalent than others, with two emerging as clear leaders in terms of numbers of posts which ask about them: Health-Condition and Relationships. Both information and emotional support are sought for many topics, and they are not always easy to

distinguish. Information needs are expressed by posters in three main ways: self-disclosure/describing their situation, making specific requests or asking specific questions, and using a combination of the two (see Section 3.2).

Health-Condition (52.6%) covers issues associated with any kind of health condition, disease or disorder. Requests for help or information in this category are related to a wide range of mental and physical health concerns, with one type of condition sometimes being linked to another (e.g. self-harm and depression). Posters sought information on things such as depression, self-harm, eating disorders, anxiety, multiple personality disorder, suicidal tendencies, ADHD, hepatitis, stress, phobias, STDs and epilepsy. Posters are interested in different aspects of their conditions, such as treatments, medication, symptoms, how to stop certain behaviours, how to hide their condition (e.g. covering scars from cutting), and how to cope in general. The majority of these topics are associated with mental rather than physical health. **Relationships** (21.9%) deals with various issues about parents, (potential) partners, other family members and friends. Information/support needs pertain to break ups, getting over past relationships, getting people to listen, how to make friends or find a partner, divorce, trust, and cheating – in general, how to cope with, improve or start different types of relationship.

Legal or illegal issues (5.3%) covers social security, divorce/custody/alimony, shoplifting and drug dealing. Posters mainly seek information on specific details of the law relating to these matters, as well as general reassurance that everything will be alright in the end. **Abuse** (5.3%) focuses on coming to terms with past abuse. This topic is interesting because although the event that triggered their information seeking happened in the past (sometimes a long time ago), posters use the newsgroup to try to deal with it at a different point in time. This contrasts with most other topics, where the trigger event or situation is temporally much closer to the information seeking activity. This sub-code includes emotional, physical and sexual abuse, usually on more than one occasion. **Grief/Death** (5.3%) is almost solely concerned with the death of a loved one, either very recently or sometime in the past. In this sense the topic is similar to that of abuse, where the trigger event is not necessarily at the time of posting. In posts with this topic, there is a feeling that something is wrong because the poster is not managing to come to terms with the event: *I feel so stupid, that i still feel this way over 15 years later, but it doesnt seem to get any better*.

Health-Resource (4.4%) topics relate to finding resources such as health practitioners, support groups and health insurance. They almost always appear in the same posts as Health-Condition topics as the two are usually closely linked; posters ask about resources for their own particular conditions. **Substance use and abuse** (4.4%) deals with drug taking and addiction, with posters seeking information and support for both their own addictions and those of family members. **Pregnancy** (4.4%) includes information and support seeking about teenage pregnancy and abortion, negative reactions to pregnancy, and sex (only where pregnancy is the focus; sex is also considered in its own right). Also featuring in our data are the topics of **Harassment** (3.5%), **Sex** (3.5%) and **Sexuality** (3.5%). Sexuality is the most interesting in terms of support seeking as posters often need general support and information due to feeling lost or confused: *i feel really alone and scared of who i think i might be… i don't know what to do.*

Given the extent of health-related groups on the Internet and studies concerning them (see Section 2.2), it is perhaps not surprising that health-condition was the most common topic of information need we found. Several topics (health conditions and resources, abuse, grief/death, pregnancy, harassment, relationships) fall in line with Chatman's findings that people hide information needs which make them seem less able to cope than others (Chatman 1996). Our legal or illegal issues topic is interesting because it suggests that local information sources are not useful in a different way, i.e., potential sources may not actually know the answers to specific questions relating to points of law. Other topics identified, such as sexuality and substance use and abuse could perhaps generally be considered as related to marginalized identities (McKenna and Bargh 1998).

4.2 Who are these Needs Hidden from?

Most posts specify the people from whom information needs are hidden, but not always. We found 6 major groups of potential sources who were being kept in the dark about posters' needs, as well as cases of unspecified sources. Again, some sources emerged as more common than others, with Parents by far the most prevalent, followed by Family and Everyone. Our key phrase search strategy has more of a direct effect on the Hidden-From sub-codes as some of the search phrases specified a source (see Section 3.1). However, we expanded the initial phrase list based on variants and other examples we found in the posts in an attempt not to restrict the range of potential sources. A possible limitation with analysis of information sources is that posters may not explicitly mention all sources they are avoiding or using. However, it may be that by explicitly mentioning a source, the poster considers that it should be the most helpful for a particular problem.

Parents (38.6%) are the most common source from which information needs are hidden; all of the topics identified above were explicitly mentioned as being kept from parents. Needs about health conditions, relationships, grief/death, legal or illegal issues, sexuality, abuse, pregnancy, sex and harassment are most often kept secret. **Family** (24.6%), when mentioned as distinct from parents and partners, is the next most common group of people that

posters hide their needs from. For some posters 'family' may include parents and partners, but given the individual mentions of these we code them separately. Posters concerned with health conditions, health resources, relationships and grief/death tended to hide information needs from their family. **Everyone** (20.2%) encompasses all other sources, but again, this was explicitly mentioned by a number of posters, and therefore was considered as a group in its own right. Needs relating to pregnancy, relationships, abuse, health conditions and sex were kept from everyone, as well as harassment and health resources.

Friends (14.9%) are not approached for support with substance use and abuse, grief/death, relationships and health conditions. Abuse, sexuality and health resources were also sensitive topics where friends are concerned but to a lesser extent. **Health or Social Care Professionals** (13.2%) are predictably not approached for information about health conditions and substance use and abuse (although not as often as with parents). The topics of pregnancy, legal or illegal issues and relationships also feature. **Partner** as a separate group is only mentioned in 4.2% of posts; however, it was interesting to see which concerns are hidden from those with whom one might have the closest relationship within the family, in comparison with other members. The topic of pregnancy was most often purposely hidden from this group, because the poster felt that they either had an unacceptable view about it which may hurt their partner, or because their partner was not supportive of associated emotional issues. Information needs about substance use and abuse were also kept secret.

Unspecified (9.6%) was an option here as posters did not always see it as necessary to elaborate on sources. However, these posts are still analyzed because posters do not seem to have any sources available to them at all. Unspecified sources are typical of posts containing generic expressions of not knowing who to ask or where to go for help, and cover information needs on legal or illegal issues, health conditions, substance use and abuse, and grief/death. Example: *I just don't know where to turn now. Sometimes I think that maybe it would be better just to leave this earth!*

Our findings regarding potential sources of support from whom information needs are hidden echo Chatman's observation that in certain situations or environments individuals will not even approach those closest to them for help (Chatman 1996). In the case of health or social care professionals being avoided, as well as posts coded for those topics which can be considered as related to marginalized identities, there is also an element of insider/outsider. Posters are not willing to engage with outsiders – professionals who are outside of their usual social circle, those who are not into drugs, those with 'conventional' sexual identities, etc. – perhaps because they feel that their information is not relevant. These observations are closely tied to the next section on reasons for using newsgroups.

4.3 Reasons for Seeking Information Online

The third part of our analysis looks at why people feel they can only express their information needs in Internet newsgroups, and not to those sources they may normally use. Many themes emerged during coding, and as with the other sub-codes discussed above, some were more prevalent than others. A lack of understanding or support and not knowing where else to go are the main reasons we found. Only the most commonly occurring themes are discussed here.

Lack of understanding or support (31.6%) from potentially useful sources is the most common reason for using the newsgroup as a means of seeking information and support rather than other sources. Posters perceive partners, friends, family and parents as unsupportive, as well as health or social care professionals and 'everyone' to a lesser extent. Examples: *i can't tell my friends how my parents are like or they would just think they're weird* (abuse); *Cant talk to my mum coz she'll just say Im being a drama queen, She doesnt understand* (health condition).

Don't know where else to go (28.1%) is not a particularly specific reason for using the group, but it captures a lot of the worry and sometimes desperation of people seeking information through this medium. This sub-code covers cases where the poster is not sure why they are posting to the group, but they don't seem to have any other options or 'can't tell anyone they know'. This reason appears most often with unspecified sources (in almost all posts where the source is unspecified), but also when needs are hidden from health or social care professionals and everyone, and family and partners less frequently. Examples: *I am totally new to this. I've never posted anything. But..I don't know where to turn* (legal or illegal issues); *I don't really know why I'm posting this, but I cannot tell anyone I know about it, and it's driving me crazy...*(relationships).

Seeking similar experiences (20.2%) emerged as another popular reason for online information and support seeking. Posters seem to feel that family and friends, as well as 'everyone' and partners, cannot provide them with this shared outlook. A lack of understanding or support is also perceived in almost half of the posts where people are looking for others experiencing similar issues; the themes are closely linked. Examples: *My fiancee says I can talk to him about it, but he has never been in the situation..so he really cannot be there totally* (abuse); *and if anyone has had this happen, tell me what you did!* (relationships).

Other sources unhelpful or exhausted (18.4%) is distinct from a lack of understanding or support in that posters have often tried to approach a source in the past with an unsuccessful outcome, and therefore will not consider using this source again. There is also the feeling of needing some practical action to improve a situation, rather than needing understanding or emotional support. Posters are sometimes currently using another source of information/

support but they do not feel that it is helping them in the way it should, and so no longer express their real information needs in that arena. Family and health or social care professionals were considered to be the most unhelpful or exhausted sources. Examples: *But I told my mom about it. But my mother thought it was a game so she warned the boy "no touching!" and that was it* (abuse); *ive called the police and they won't do anything because he doesn't abuse me* (relationships, substance use and abuse).

Negative reaction of others (17.5%) covers issues such as disappointment of parents and friends, causing arguments or fights, and ruining relationships. Posters keep their needs hidden from 'everyone', friends and parents in an attempt to avoid these situations. They tend to be trying to prevent a more 'physical' outcome than an emotional lack of understanding/support, in extreme cases being removed from their current environment: *I cant tell anybody that cos like the original poster said I will be locked up again in a mental place* (health condition); *I dont want to start any shit.. And I know it will* (relationships).

Negative effect on others (17.5%) is a more selfless reason for seeking information in this setting, with posters hiding information needs in an effort to protect other people from worry, burden or hurt. In these posts, friends are not approached for information or support, as well as family and partners, and parents less often. These people are avoided because they are ill or have other problems, or sometimes just because the poster does not want to upset them. Examples: *I cannot talk to my wife, she has major post partum depression to deal with* (substance use and abuse); *I cant talk to my family and friends about all of this because they just don't understand and they worry about me.. So I tell them everything is going well and it keeps them happy* (health condition).

Additional source (15.8%) occurs when posters are already aware of or using other useful sources (health or social care professionals, friends and partners), but still feel the need to come to the newsgroup to talk. This sub-code differs from unhelpful/exhausted sources because the sources here are effective, but do not quite fill the entire information need. Where posters are aware of but do not use other sources, they can be seen as more entrenched in information poverty. Although this code may partly seem to go against the concept of information poverty because posters recognize sources of help, we kept it in our analysis because it demonstrates that the situation can exist without necessarily being absolute (cf. Veinot 2009). Along with the code for other sources being unhelpful or exhausted, it illustrates a spectrum of information poverty rather than a complete lack of sources. Examples: *I've expressed them somewhat to a few people on IRC and in email, but I really wanted to say something in here* (relationships, abuse); *Friends can only do so much. Then at night. They go home. And again I'm left with emptiness* (relationships).

Intermediate step (11.4%) covers situations where posters are using the group as a way of finding information about how to approach other sources – usually health or social care professionals, parents and friends. They may want to talk to these other sources immediately, or may be seeking support and encouragement because they know they should try to do this at some point in the future. This reason for posting is one step on from seeking information about a problem itself, and is a particularly interesting example of using Internet groups to lift oneself out of information poverty, again suggesting a spectrum rather than an absolute situation. Examples: *I have been thinking of telling him about myself, but I can't do it* (sexuality); *i would just like to talk to someone, group, counsellor etc, i just dont know where to start* (grief/death).

A number of posts did not specify reasons for seeking information online (**Unspecified**, 9.6%), simply stating that they cannot talk to anyone else without elaborating further. Although no reasons are given, the posters still have information needs which are hidden from potential sources of help. Example: *I read how you and other people always say "tell your friends, parents, counsulors at school" but I CANT I just cant, please trust me on this one I cant tell anybody, please, believe me* (health condition).

Embarrassment and a general need for anonymity were also identified as reasons, but on a much smaller scale than we expected given the findings of related work (e.g. McKenna and Bargh 1998, Hamer 2003). However, these issues may be a factor, but posters do not necessarily feel the need to draw attention to them in this setting. In addition, a number of our topics (or the concerns covered by them) may be classed by others as related to stigmatization, but we did not make this explicit link in our coding. Many of the reasons we found more frequently for people using newsgroups support the conclusions of previous work. Almost all of the studies described in Section 2.2 consider finding people in similar situations as a crucial element of online support. This also links to a lack of understanding and even negative reactions of others found in our data.

In keeping with Hamer (2003) and Veinot (2009) we found evidence that information poverty is not necessarily absolute; our posters sometimes recognized or used other sources of support in addition to the newsgroup, or used the group as a stepping stone to progress to other sources. As in Veinot's study, some of our posters did not express needs in order to protect others, as well as for other reasons such as not wanting a negative impact on their own lives. This reflects Chatman's point that people do not risk exposing needs for fear of negative consequences. A lack of understanding or support, seeking similar experiences and finding other sources unhelpful are linked to Chatman's observations on the mistrust of information given by others. Our code capturing a lack of anywhere else to go ties in well with her general idea of a perceived lack of sources.

5. Conclusions

This paper presented an ongoing analysis of how information poverty manifests on the Internet. By using a set of key phrases to identify posts which demonstrated information poverty from across Usenet and other discussion groups, we gained insights into how and why people who feel they have nowhere else to go use this type of social media to seek information and support. A qualitative content analysis revealed that although support on a range of topics is sought, information needs relating to health conditions are by far the most common, appearing in more than half of the posts analyzed to date. Other topics reflected the health, identity and social issues reported in previous work. Similar to some of Chatman's findings, our posts showed that information needs were most often hidden from people close to the poster who should usually be able to help – parents, family and friends, as well as from health or social care professionals. In many cases, posters felt unable to approach anyone at all about their problems. The most popular reasons for using newsgroups as opposed to other sources included a perceived lack of support or understanding, having nowhere else to go and a desire to seek out others with similar experiences. Our work shows that these groups provide a means of expression for those who feel they have no local support for their information needs.

In relation to the original theory of information poverty, our findings provide support for five of Chatman's six propositions. Posters engaged in self-protective behaviours of secrecy and deception and perceived a lack of sources in their usual environments, which drove them to the newsgroup as the only (in most cases) other source of help. Mistrust in potential sources' ability to provide useful information and not wanting to risk exposure of their needs due to possible negative consequences were also evident. Interestingly we found cases of newsgroups used as an additional source of support or an intermediate step, which ties in with the selective introduction of new knowledge whilst at the same time suggesting a spectrum of information poverty rather than an absolute situation.

Future work will focus on adding to our collection of analyzed posts to identify new themes or to add further evidence to our current findings, as well as to examine intersections between our codes in more detail. Given that distinct patterns have already emerged in our data, we predict similar findings for the remaining posts. In the next phase of our project we will look at responses to the initial posts examined here to gain insights into the support given in newsgroups as well as the information sought there.

Acknowledgments

This research was supported by the ESRC through grant RES-000-22-4048.

References

Chatman, E. A. 1991. Life in a small world: Applicability of gratification theory to information-seeking behavior. *Journal of the American Society of Information Science and Technology* 42(6): 438-449.

Chatman, E. A. 1992. *The information world of retired women*. Westport, Conn.: Greenwood Press.

Chatman, E. A. 1996. The impoverished life-world of outsiders. *Journal of the American Society of Information Science and Technology* 47(3): 193-206.

Davison, K. P., Pennebaker, J. W., and Dickerson, S. S. 2000. Who talks? The Social Psychology of Illness Support Groups. *American Psychologist* 55(2): 205-217.

Eichhorn, K. C. 2008. Soliciting and Providing Social Support Over the Internet: An Investigation of Online Eating Disorder Support Groups. *Journal of Computer-Mediated Communication* 14:67-78.

Eysenbach, G., and Till, J. E. 2001. Ethical Issues in Qualitative Research on Internet Communities. *British Medical Journal* 23:1103-1105.

Glaser, B. G., and Strauss, A. 1967. The Discovery of Grounded Theory. Strategies for Qualitative Research. Chicago, IL.: Aldine Publishing Company.

Hamer, J. S. 2003. Coming-Out: Gay Males' Information Seeking. *School Libraries Worldwide* 9(2): 73-89.

Klaw, E., Huebsch, P. D., and Humphreys, K. 2000. Communication Patterns in an On-Line Mutual Help Group for Problem Drinkers. *Journal of Community Psychology* 28(5): 535-546.

Lasker, J. N., Sogolow, E. D., and Sharim, R. R. 2005. The Role of an Online Community for People With a Rare Disease: Content Analysis of Messages Posted on a Primary Biliary Cirrhosis Mailinglist. Journal of Medical Internet Research 7(1): e10. http://www.jmir.org/2007/1/e10.

McKenna, K. Y. A., and Bargh, J. A. 1998. Coming Out in the Age of the Internet: Identity "Demarginalization" Through Virtual Group Participation. *Journal of Personality and Social Psychology* 75(3): 681-694.

Meier, A., Lyons, E. J., Frydman, G., Forlenza, M., and Rimer, B. K. 2007. How Cancer Survivors Provide Support on Cancer-Related Internet Mailing Lists. *Journal of Medical Internet Research* 9(2): e12. http://www.jmir.org/2007/2/e12.

Rodgers, S., and Chen, Q. 2005. Internet Community Group Participation: Psychosocial Benefits for Women with Breast Cancer. *Journal of Computer-Mediated Communication* 10(4): article 5. http://jcmc.indiana.edu/vol10/issue4/rodgers.html.

Sligo, F. X., and Jameson, A. M. 2000. The Knowledge–Behavior Gap in Use of Health Information. *Journal of the American Society for Information Science* 51(9): 858-869.

Spink, A., and Cole, C. 2001. Information and Poverty: Information-seeking Channels used by African American Low-Income Households. *Library & Information Science Research* 23:45-65.

Veinot, T. 2009. "A lot of people didn't have a chance to support us because we never told them" Stigma management, information poverty and HIV/AIDS information/help networks. In *Proceedings of the 72nd ASIS&T Annual Meeting, vol. 46*. http://www.asis.org/Conferences/AM09/openproceedings/papers/73.xml.