

# Exploring Information ‘Context’ in the Published Literature of Menopausal Hormone Therapy

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Using content analysis, this study explores information context as expressed in medical and consumer articles, and the role of the literature in influencing the innovation-decision process. Changing practices related to hormone therapy for menopausal and postmenopausal women, and the expression of biomedical and normal life transition models within published literature provided context for the study; ‘diffusion of innovations’ theory provided the theoretical framework that informed the investigation. Findings suggest that both medical and consumer health literature is dominated by the biomedical model; that context may influence the pre-

sentation of information, thus impacting innovation decision-making; and that published literature not only provides information and reinforces knowledge, but, through information context, it also produces and shapes meaning, and creates belief. Librarians and information professionals are encouraged to recognize the influence of context within published literature; to facilitate access by both professionals and consumers to the diversity of information that informs human knowledge; and to enhance appreciation for the contribution of diverse theoretical perspectives and research methods.

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## Introduction

*Context*, as it relates to information behavior, is receiving more attention as researchers recognize the limitations of a system-centered approach in library and information science (LIS) and begin to focus on “how humans make sense of their worlds” (Dervin 1997, 13). While “in practice, context in [LIS] studies usually refers to any factors or variables that are seen to affect individuals’ information-seeking behavior” (Talja, Keso, and Pietiläinen 1999, 752), context, as it is expressed in published materials, is a critical consideration for librarians and information professionals who seek to understand the complex role of published literature, and to facilitate access to and use of a full spectrum of information. Dewey (1960, 90) provides a starting point for exploring context as it relates to published literature: “context is ... a selective interest or bias which conditions the subject matter of thinking.”

While sociologists have effectively argued “medical knowledge is not disinterested, objective scientific knowledge, but is both shaped by and shapes the social structures within which it is embedded” (White 2002, 2), application of social constructionism in the field of medicine has been criticized for its apparent neglect of biological ‘realities.’ Freidson (1970), however, points out that although concepts of illness may be thought of as based on biological science related to specific viruses and molecules, diagnosis and treatment are social acts. Therefore, medicine may claim to be a biologically-based science, but application of medical knowledge is mediated by political and societal circumstances and is thus inherently based on the “interpretive character of social reality” (Freidson 1970, 208). Given this comprehensive view of medical practice, exploration of context within published literature provides an important perspective as evidence-based medicine, which focuses on the promotion of

research-based medical literature as a basis for clinical decision-making, receives increasing attention in the medical literature and in medical education (Gonzales, Ringeisen, and Chambers 2002).

In this study, a stratified random sample of medical and consumer articles was analyzed using content analysis in order to investigate the role of the literature in influencing the innovation-decision (I-D) process (Rogers 1995), and the role of information context. An illustrative medical case study provided context for this investigation and Everett M. Rogers' *Diffusion of Innovations* theory provided the theoretical framework that informed this study.

### *Illustrative case and research questions*

On July 8, 2002, the estrogen plus progestin trial within the Women's Health Initiative (WHI) study was prematurely halted following determination that "overall health risks exceeded benefits" (Rossouw et al. 2002, 321). Results of this long anticipated randomized controlled trial were initially communicated to the medical community in the prestigious *Journal of the American Medical Association (JAMA)* and simultaneously the popular press brought WHI results to consumers. Thus, the diffusion of hormone therapy (HT) as a long-term preventative treatment innovation for healthy menopausal and postmenopausal women, and its representation in published literature was irrefutably impacted. What remains less certain is whether WHI results impacted the context of literature related to menopause; in particular, the pervasive expression within medical and consumer literature of the biomedical model, a model which undergirds medical management of middle-aged and older women in our culture (Harding 1997), and which dominates information available to physicians and women.

In order to explore the role of the literature and WHI impact on information context, a random sample of medical and consumer articles was analyzed (Genuis 2004). The following research questions were addressed:

1. How did the published results of the WHI study influence medical and consumer literature and what role did the literature play in the I-D process (Rogers 1995) related to HT as a long-term preventative therapy for menopausal and postmenopausal women?

2. How has the WHI study impacted context as illustrated by the expression of the biomedical and normal life transition (NLT) (Gonyea 1996) models in medical and consumer articles?

This article focuses on WHI impact on the expression of biomedical and NLT models within the sample and discusses implications of these findings, in particular, the complex context of information today and the significant challenge for librarians and information professionals as they seek to facilitate an understanding of information context by promoting access to and use of a wide range of information.

### *Literature review*

#### *Diffusion of innovations theory*

*Diffusion* is the process by which an innovation is communicated through a variety of channels over time and among members of a given social system (Rogers 1995). This dissemination focuses on the spread of messages that are related to new ideas or technologies and on subsequent behavioral reaction, either adoption or rejection. Because Diffusion of Innovation theory is not oriented towards the content of the new idea, this theory provides a framework for exploring the diffusion of any innovation or idea. Understanding diffusion, a process first formalized into theory by Rogers in 1962 and now elucidated by over 6200 diffusion studies (Rogers 2002), involves an appreciation for the attributes of innovations as well as attention to the I-D process, to the channels used to communicate information about innovation, and to characteristics of the social system within which diffusion is occurring. Rogers' theory has been effectively used to illuminate transmission of medical innovations into clinical practice, and from medical to public spheres (Rogers 1995).

Research demonstrates that innovation diffusion is strongly influenced by the following attributes: (1) *relative advantage*, the "degree to which an innovation is perceived as being better than the idea it supersedes (Rogers 1995, 212); (2) *compatibility*, the innovation's consistency with beliefs, values or needs of adopters; (3) *complexity*, the "degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers 1995, 242); (4) *trialability*, the ability to try an innovation

without full commitment to ongoing use; and (5) *observability*, the observance of positive benefit from innovation use. Furthermore, Rogers states "most individuals do not evaluate an innovation on the basis of scientific studies of its consequences, although such objective evaluation are not entirely irrelevant" (Rogers 1995, 18). Given the influence of innovation attributes and the critical concern for research utilization in clinical practice (Dobbins et al. 2002), it is important to consider how published literature communicates innovation attributes and thus impacts innovation diffusion.

The I-D process, as elucidated by Rogers (1995), incorporates information seeking and information processing as individuals or organizations move through the following stages: knowledge acquisition, persuasion, decision, implementation, and confirmation. Since innovation diffusion is integrally tied to communication channels (in fact, classic medical diffusion research demonstrates that different channels may be involved at different stages of the I-D process (Coleman, Katz, and Menzel 1966)), this sociological theory has potential to provide insight into the role of published scientific information and information context.

### *The Meaning of Menopause*

In order to explore the context of published literature related to HT, it is important to have an appreciation for the meaning of menopause in our society. Although menopause is clearly a biological occurrence, cultural environments shape interpretation of this life event. The biomedical model dominates the medical literature; but a contrasting perspective is presented by those who view menopause as a NLT that "touches on many aspects of women's lives, from women's physiology and intrapsychic experiences to social structures and norms" (Gonyea 1996, 418). These divergent views of menopause shape not only physicians' and women's perceptions of this life experience (Hemminki and Topo 1997; Stephens, Budge, and Carryer 2002), but also how researchers approach questions related to menopause (MacPherson 1990) and how management of this life stage is presented in medical and consumer literature (Worcester and Whatley 1992).

### *Biomedical model*

Western medicine has been viewed traditionally as an objective science, which evolved based on progressively more accurate knowledge of diseases and treatment. This view is based on the *biomedical model*, which assumes the following: (1) *mind-body dualism*, that is, the mind and body can be treated separately; (2) the body can be repaired, thus a *mechanical metaphor* can be used to describe doctors' actions; (3) intervention should follow identification of dysfunction, thus evoking a *treatment imperative*; (4) explanation of disease focuses on biological factors, resulting in a *reductionist* perspective; and (5) reductionist tendencies are intensified by the *doctrine of specific etiology*, the assumption that every disease is caused by an identifiable 'disease entity' (Nettleton 1995).

The case study chosen for this exploratory study clearly illustrates the biomedical model: menopausal and postmenopausal women were defined as being ill and menopause was identified as a 'deficiency disease' (Wilson 1966); this life stage was constructed as a time of risk (Palmlund 1997b); and a treatment imperative emerged (Topo, Hemminki, and Uutela 1993). With the widespread promotion of HT to physicians and women (Palmlund 1997a; Kaufert and Lock 1997), the language used in texts to describe and understand this phase of life "shifted markedly to the biomedical" (Hunter 1996, 119) and became the paradigm that "predominates in research literature and media accounts" (Hunter, O'Dea, and Britten 1997, 1541).

### *Normal life transition model*

Although the biomedical perspective has dominated medical and consumer literature (Hunter, O'Dea, and Britten 1997), there is evidence for viewing menopause as a NLT, which is "mediated through cultural understandings and socio-economic conditions" (Gonyea 1996, 418). Flint and Samil (1990), in their cross cultural study, point out to medical readers that each woman's culture influences the way she responds both subconsciously and consciously to menopause. They suggest that an interdisciplinary "biopsychocultural" approach, which acknowledges menopause as a natural, biological life phase that is experienced differently in various cultures and

settings, will allow the individual doctor to be “a better physician to his/her patient” (Flint and Samil 1990, 145). Love (2003) describes menopause as a “biocultural” (31) event and explains to consumers that individual and cross-cultural differences as well as social factors influence how women experience this life stage. Studies of women in northern India and northeast Thailand, for example, revealed that these women reported no adverse menopausal symptoms and welcomed menopause as a time of freedom (Love 2003).

Qualitative studies exploring the experiences of menopausal and postmenopausal women reinforce the view of menopause as a transition that is culturally mediated and individually experienced (Hunter, O’Dea, and Britten 1997; Hvas 2001; Stephens, Budge, and Carryer 2002; Winterich and Umberson 1999). While qualitative studies indicate that women resist the biomedical approach, HT has had a significant impact on the way menopausal and postmenopausal years are perceived and defined (Topo and Hemminki 1995); even women who are “critical of doctors and medication ... rely on medical advice and a medical model of risk to make their decision” (Stephens, Budge, and Carryer 2002, 348).

### *The meaning of menopause post-WHI*

Despite biomedical model predominance, the unexpected results of the WHI caused re-evaluation of this model as it relates to menopause. Smoking cessation, exercise, a healthy diet, and maintenance of ideal body weight are being promoted as alternative means of disease prevention, and non-symptomatic women are being encouraged to avoid HT (Love 2003; American College of Obstetricians and Gynecologists 2002; Yusuf and Anand 2002). While this re-evaluation does not suggest that the NLT model is widely reflected in the literature, it does remove the focus from HT as the middle-aged woman’s answer to whatever is identified as the problem (Worcester and Whatley 1992).

### *Methods*

Content analysis, a “summarizing, quantitative analysis of messages” (Neuendorf 2002, 10) that can be used to “make valid inferences from text” (Weber 1990, 9), was used in this exploratory

study. The unit of analysis was articles published in medical and consumer publications; texts were based on paper-published material since web content does not remain static and since that many consumer publications use reprints from paper-published magazines in their online articles.

### *Sampling*

Articles included in the sampling frame were limited to those published from 1999 to the most recently available issues at the time of sampling (October 2003). This allowed the analysis of articles prior to the initial publication of WHI results, and in the time that had passed since July 2002, thus facilitating analysis of change. Only publications available in English, for which there was database access and the ability to search content using specified key terms, and that were accessible in full text (either online or through local academic or public libraries) were included.

The goal of consumer and medical portions of the sample was to select a representative sample of articles from a variety of publications read respectively by Canadian women and physicians. This allowed an analysis of information that these two populations were commonly accessing as they directly and/or indirectly learnt about menopause and HT during the time period from which the sample was drawn.

Consumer publications were selected using the following procedures: (1) the five publications with the highest average number of female readers per issue, as indicated by the 2002–2003 edition of *Media Digest* (Canadian Media Director’s Council 2002–2003), and with a verified scope that incorporated health issues and a target audience including women 40+ years of age, were selected to contribute to the sampling frame; and (2) the sampling frame was supplemented by articles accessed through the database *CPI.Q* (*Canadian Periodicals Index*) in order to include material from a “comprehensive list of Canadian and International journals, magazines, selected sections of the *Globe and Mail*, Canadian biographies and other reference content from Gale Group, all with a Canadian focus” (Gale Group Inc. 2003).

Because of the lack of a readily available source that compiles circulation figures for medical journals and because increasing access to online

resources such as PubMed has decreased dependence on individual subscriptions to medical journals, medical publications were selected based on Canadian origins and representation of major medical associations. Medical publications were selected using the following procedures: (1) journals were chosen if they were relevant to general practitioners and/or specialists in Obstetrics and Gynecology, and *Publication Profiles* (Rogers Media Inc. 2003) verified Canadian origins and scope; and (2) primary journals published by the American Medical Association (*JAMA*) and British Medical Association (*British Medical Association Journal*) were chosen for inclusion as they are prominent journals that are relevant to Canadian physicians.

The sampling frame was selected from designated source publications using a combination of search terms representing the concept of HT, and the concept of menopause and postmenopause: 57 consumer articles (21 pre-WHI, 36 post-WHI) and 84 medical articles (46 pre-WHI, 38 post-WHI) were identified. The stratified, random sample was composed of one out of every three articles in the sampling frame and, using a random numbers table, seven pre-WHI and 13 post-WHI consumer articles, and 16 pre-WHI and 13 post-WHI medical articles were selected for analysis. The final sample consisted of 49 articles.

### *Variables and data analysis*

Variables for content analysis were developed in accordance with research questions. A detailed list of operational definitions and content indicators for variables and a content analysis worksheet was developed, pilot tested, and adapted. Data analysis of values was accomplished by using the program, Statistical Package for the Social Sciences (SPSS); frequencies were compiled, and chi-square and Cramer's V tests were performed on selected variables in order to determine the statistical significance of associations between variables (significant at  $p < .05$  unless otherwise stated). In a number of cases, variable values were collapsed at the data analysis phase.

### *Study limitations*

This study was limited by criteria used in selecting sampling frame articles: because articles were

selected by search terms representing both HT and menopause, articles not indexed as addressing HT were rejected. Although articles noting HT alternatives tended to also mention HT, and indexing generally noted HT even when HT alternatives were being discussed, it is, nonetheless, possible that there was bias. Because the biomedical model's prevalence within menopause-related, published literature is documented (Hunter, O'Dea, and Britten 1997), however, it is likely that bias towards this model is the result of systemic bias rather than sampling bias. This point is strengthened by the accepted terminology used in the vast majority of articles: the phrase 'hormone replacement therapy' directly implies that women's bodies are deficient following menopause and that, through the administration of exogenous hormones, balance may be restored (Worcester and Whatley 1992).

Since a single coder performed content analysis, consistency could not be established. This limitation was addressed by the pilot study, which allowed exploration of the research method as well as of variable definitions. Following the pilot study, the problem of analytic consistency was further addressed through the development of detailed operational definitions for variables and values, and the prominent display of these definitions throughout analysis.

## *Results and discussion*

### *Introduction*

The biomedical model was expressed within the random sample by articles presenting the view that the body is machine-like and can be 'fixed' with appropriate medical intervention. Explanation of experiences during menopause or postmenopause focused on biological changes, with relative neglect of social context, and menopause was viewed as a deficiency disease that required medical regulation and supervision. In contrast to this view, the NLT model was expressed by articles that communicated a view of menopause as a naturally occurring life phase, which is impacted by cultural and social factors (Flint and Samil 1990; Gonyea 1996; Love 2003). While medical assistance might be sought for specific physical problems, articles expressing this view did not present the life phase itself as an illness.

Among those articles that could be clearly identified as expressing the biomedical or NLT model ( $n = 43$ ), 83.7% ( $n = 36$ ) were identified as reflecting the former approach and 16.3% ( $n = 7$ ) reflected the latter view. Although biomedical model dominance resulted in few statistically significant findings, content analysis facilitated thought-provoking observations regarding the role of literature in change and the importance of information context.

In the following discussion, relationships between articles demonstrating a biomedical or NLT approach, and the following variables are explored: audience, WHI impact, innovation attributes, I-D stages, projected tone, and major themes.

### *Audience*

Because “doctors are more likely to conceptualize menopause in terms of illness or disease, than women, who tend to regard it as a part of everyday life,” (Hunter, O’Dea, and Britten 1997, 1546) the biomedical and NLT models are sometimes discussed within the context of “medical discourse” vs. “women’s health discourse” (Harding 1997, 138). In this exploratory study, however, results suggest that a similar proportion of medical and consumer articles expressed the two conceptual models: 83.3% ( $n = 20$ ) of medical and 84.2% ( $n = 16$ ) of consumer articles expressed the biomedical model, while 16.7% ( $n = 4$ ) of medical and 15.8% ( $n = 3$ ) of consumer articles expressed the NLT model.

Since the biomedical model is the “dominant paradigm of Western medicine” (Nettleton 1995, 2), it might be anticipated that the majority of medical articles would demonstrate this model. The predominance of this model in consumer articles, although standing in contrast to qualitative studies indicating women’s interest in alternatives to HT and their apprehension about the long-term implications of HT (Hunter, O’Dea, and Britten 1997; Stephens, Budge, and Carryer 2002; Winterich and Umberson 1999), confirms findings of other researchers. Worcester and Whatley (1992), for example, note, “the information women get in the lay press is very much biased towards the use of hormones” (7). These authors point to testimony before a committee of the Food and Drug Administration, which presented a study of articles published between 1985

and 1988 in which three quarters of articles on this topic published in popular women’s magazines “were clearly pro-hormones” and “fully half of the articles did not even mention any risks with oestrogen use” (7). In addition, an overview of estrogen marketing to physicians and women, found that many cultural products, including books and women’s magazines, “are overt arguments for the use of hormone therapy” (Palmlund 1997a, 162). Results, therefore, confirm previous findings: the biomedical model provides context for the majority of both medical and consumer articles.

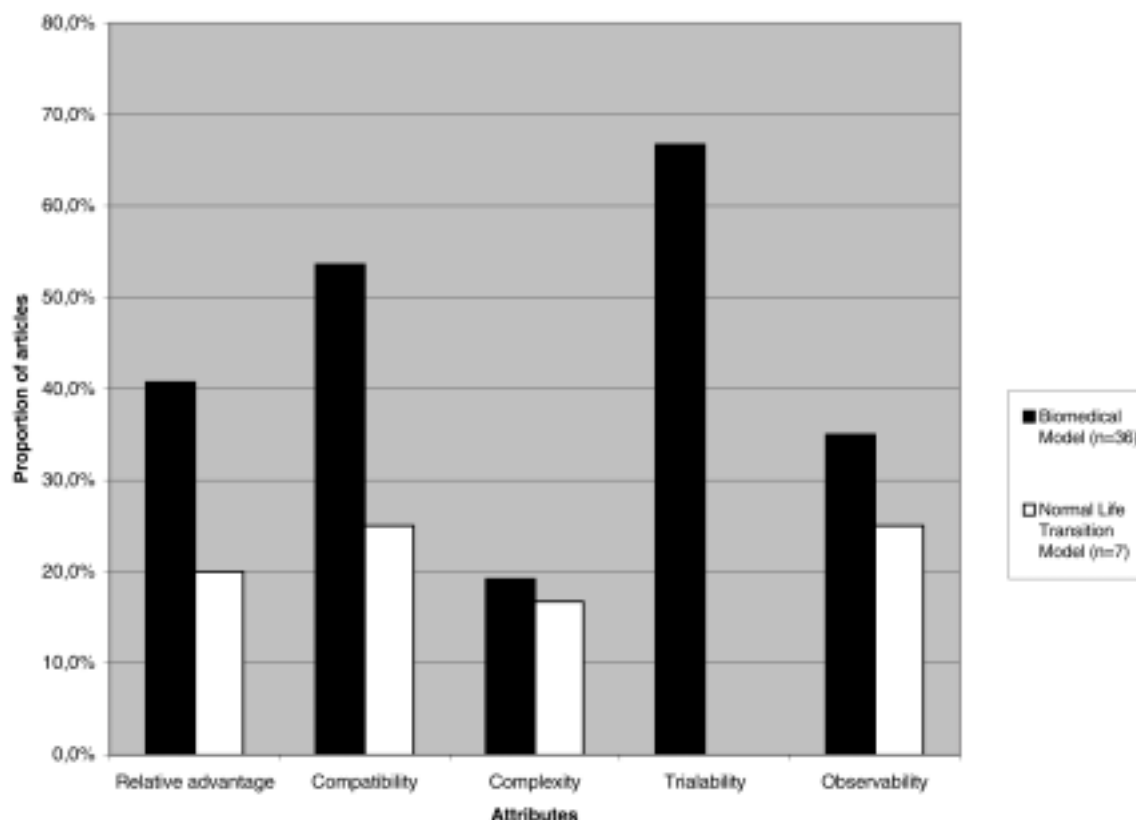
### *WHI impact*

While 50% ( $n = 18$ ) of articles reflecting the biomedical view were found in the pre-WHI time period and the same percentage was found post-WHI, 14.3% ( $n = 1$ ) of articles demonstrating NLT characteristics were pre-WHI articles and 85.7% ( $n = 6$ ) were published post-WHI. Although the total number of NLT articles was small, this represents an increase from 5.3% ( $n = 1$ ) of all pre-WHI articles to 25% ( $n = 6$ ) of all post-WHI articles, thus suggesting a noteworthy increase in articles that view menopause as a normal life phase.

A lower than expected proportion of post-WHI articles communicated the assumption that menopause is associated with undesirable symptoms and future disease, thus indicating a significant relationship between symptom/disease-assumption and WHI impact ( $\Delta^2 = 5.553$ ,  $df = 1$ ). Furthermore, there was a statistically significant relationship between symptom/disease-assumption and presentation of the relative advantages of long-term preventative HT ( $\Delta^2 = 6.217$ ,  $df = 1$ ); articles communicating the symptom/disease-assumption included a higher than expected proportion of articles presenting the relative advantage of HT. Thus, with the publication of WHI findings, which communicated long-term HT’s clear lack of relative advantage, expression of this assumption also decreased. By calling into question assumptions about postmenopausal symptoms and disease risk, the reductionist perspective and treatment imperative presented by the biomedical model was challenged.

Given the fact that the biomedical model pervades both our culture and the medical care of

Fig. 1: Positive attributes of long-term preventative HT in articles demonstrating biomedical vs. normal life transition model



women throughout their lifespan (Love 2003; Nettleton 1995), the increased proportion of NLT articles and decreased expression of the symptom/disease-assumption in WHI impacted articles may indicate that the WHI opened the door to discussions of menopause within the context of normal life development.

### Innovation Attributes

The majority of articles expressed the biomedical model regardless of whether they demonstrated attributes of long-term preventative HT in a positive or negative light; however, a greater proportion of biomedical model articles expressed positive attributes of this therapy than did NLT articles (see figure 1). Although the number of NLT articles was small, it was apparent that within the expression of each innovation attribute, the proportion of articles expressing the biomedical model decreased and the proportion of articles expressing the NLT model increased when innovation attributes were presented in a negative manner (see table 1). Results suggest that articles

presenting information within the biomedical context presented a more positive view of HT attributes, whereas articles presenting information within the NLT context presented a more negative view of attributes.

Table 1. Percentage of biomedical and NLT articles presenting positive and negative innovation attributes

Innovation Attributes	Biomedical Model	NLT Model
Relative advantage		
- Positive attribute	91.7% (n = 11)	8.3% (n = 1)
- Negative attribute	80.0% (n = 16)	20.0% (n = 4)
Compatibility		
- Positive attribute	93.8% (n = 15)	6.3% (n = 1)
- Negative attribute	81.3% (n = 13)	18.8% (n = 3)
Complexity		
- Positive attribute	83.4% (n = 5)	16.7% (n = 1)
- Negative attribute	80.8% (n = 21)	19.2% (n = 5)
Trialability		
- Positive attribute	100.0% (n = 2)	50.0% (n = 1)
- Negative attribute	0.0% (n = 0)	50.0% (n = 1)
Observability		
- Positive attribute	87.5% (n = 7)	12.5% (n = 1)
- Negative attribute	81.3% (n = 13)	18.8% (n = 3)

### *Innovation-decision stages*

All articles in the first three I-D stages (knowledge acquisition, persuasion, and decision) communicated the biomedical model. Beginning with the post-adoption uncertainty demonstrated in implementation stage articles, there was evidence of the NLT model: the majority of implementation stage articles (84.2%,  $n = 16$ ) reflected the biomedical approach, but 15.8% ( $n = 3$ ) presented the NLT perspective. In the confirmation stage, the proportion of NLT articles increased to 21.9% ( $n = 7$ ), while the proportion of biomedical articles decreased (78.1%,  $n = 25$ ). Although these percentages confirm the dominance of the biomedical model, the small increase in articles presenting menopause as a NLT suggests that the WHI not only directly provided doctors and women with information that stimulated reevaluation of long-term HT, but the context of information also changed: articles written within the context of menopause as a normal life development increased.

### *Projected Tone*

Articles were analyzed to identify those expressing an overall positive view of HT as a long-term preventative therapy for menopausal women, and those expressing an overall negative or cautious view of this therapy; articles with overall neutral tone, balanced presentation, or incidental disclaimers were excluded. It was found that 92.3% ( $n = 12$ ) of overall positive articles and 80% ( $n = 12$ ) of overall negative articles came from the biomedical perspective. The proportion of articles written from the NLT perspective was higher in articles projecting a negative overall tone towards long-term HT: 7.7% ( $n = 1$ ) of articles projecting a positive tone were NLT articles, whereas 20% ( $n = 3$ ) of articles projecting a negative tone expressed this model.

Although these results might be anticipated, they suggest that an overall negative view of long-term HT facilitates the presentation of menopause within diverse contexts. Cousins and Edwards (1999) point out: "if the experiences of women at menopause were viewed as a more natural course of events ... then perhaps a health-promoting approach using the simpler strategies that mother nature intended for us ... would make more sense" (332).

A relationship was found between articles presenting the symptom/disease-assumption and projected tone ( $\Delta^2 = 7.819$ ,  $df = 1$ ,  $p < .005$ ): a higher than expected number of articles presenting this assumption communicated an overall positive view of long-term HT. This relationship suggests that context impacts the message of articles: the assumption of dysfunction resulted in a reductionist view of biological changes, and the resulting treatment imperative is associated with a positive view of HT. The literature supports this finding: doctors who make a symptom/disease-assumption tend to promote use of long-term HT even prior to onset of symptoms or disease (Winterich and Umberson 1999).

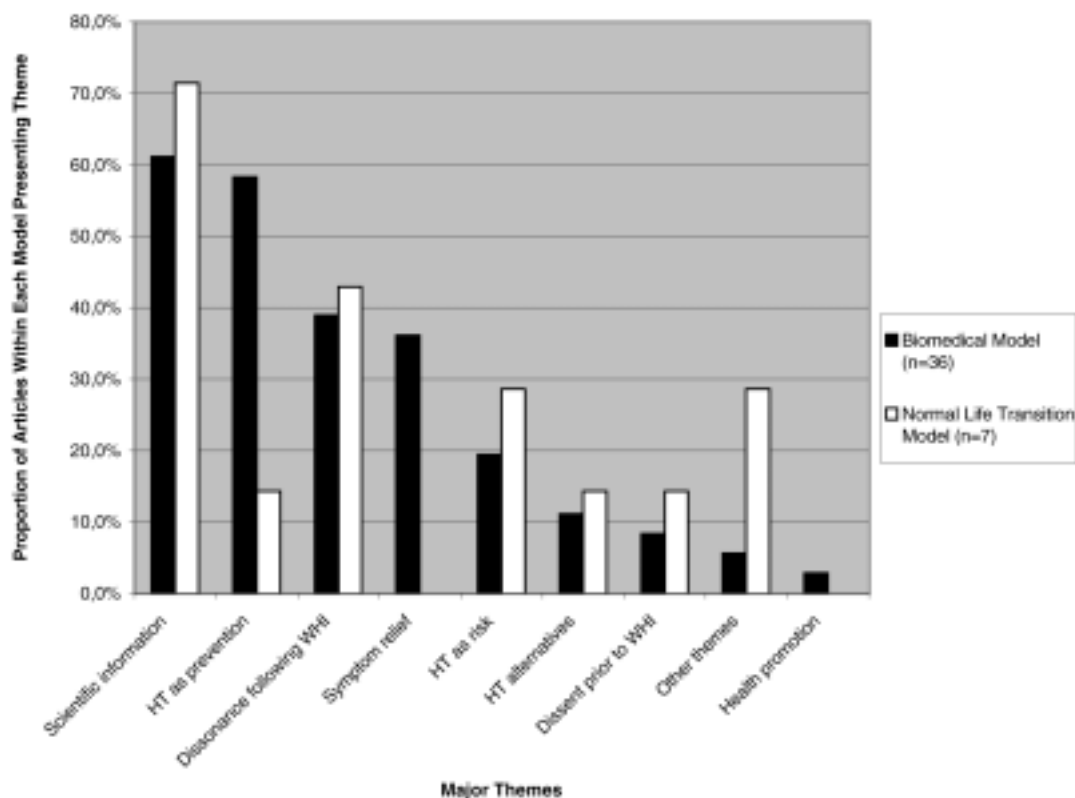
### *Major themes*

Articles were assessed to determine if they contained one or more of the following major themes: 'scientific information,' 'HT for symptom relief' 'HT as preventative therapy,' 'HT as health risk,' 'health promotion,' 'HT alternatives,' 'dissent pre-WHI,' 'dissonance post-WHI,' or 'other themes.' See figure 2 for the thematic focus of articles expressing the biomedical and NLT models. A majority of articles from both the biomedical (61.1%,  $n = 22$ ) and NLT perspective (71.4%,  $n = 5$ ) focused thematically on 'scientific information,' while 'health promotion' received little attention from articles reflecting either model. It might have been anticipated that a greater proportion of articles from the biomedical (58.3%,  $n = 21$ ) than NLT perspective (14.3%,  $n = 1$ ) focused on 'HT as prevention'; however, the lack of NLT articles focusing on 'symptom relief' ( $n = 0$ ) raises concerns. While there are consumer health books which discuss menopause as a NLT and also address the issue of symptom relief (Love 2003; Seaman 2003), the paucity of articles presenting this perspective and addressing this theme suggests that individuals who are not inclined to read a full length book, or seek out a concentrated source of information on the topic, will not be incidentally exposed to information about symptom relief within the context of the NLT model.

### *Research implications*

This study, which explored the role of published literature and the importance of information con-

Fig. 2: Major themes in biomedical vs. normal life transition model articles



text, has both theoretical and practical implications for libraries and information professionals. Implications primarily relate to the following point: medical science is dominated by the biomedical model; therefore, both physicians and patients should be made aware that information is a complex phenomenon that is impacted by context.

### Theoretical implications

Information transfer is frequently envisioned as the transportation of “a constant meaning from a source through a channel to a receiver” (Tuominen and Savolainen 1996). From this perspective, articles are viewed as a mere conduit or passive representation of fact. This study, however, demonstrates that through context, published articles produce and shape meaning, and create belief. Despite assumptions that the biomedical model is neutral from a philosophical perspective, this model facilitates a medicalized view of women’s health. The predominance of this model, the paucity of articles expressing the NLT model, and the trend towards medicalization of women’s health, negatively impacts women as it defines women as having innate physical flaws that require medi-

cal intervention. In addition, little diversity in perspective is provided to those who wish to pursue non-medicalized treatment options. Publicly funded research, such as the WHI, helps move beyond a medicalized view of health because it allows researchers to explore primary prevention interventions that may not have commercial value. Primary disease prevention not only has potential to decrease overall health spending, it also responds to women’s needs for alternative approaches of health care and to their apprehensions about lifespan medicalization.

This study also demonstrates that Rogers’ Diffusion of Innovation theory is a useful theoretical framework, which facilitates an understanding of the interaction between context and the role of the literature in effecting change. Not only does published literature provide information and reinforce knowledge, it communicates meaning that impacts the I-D process.

### Practical implications

Despite common assumptions that scientific information presented in medical and consumer articles is factual, it is critical that libraries and in-

formation professionals recognize the influence of information context and seek to facilitate access to the diversity of information that informs human knowledge. This may involve careful evaluation of complementary and alternative medicine collections as well as attention to feminist voices. The ability to facilitate diverse collections is complicated by the move towards journal 'bundling,' "the practice of aggregating all titles produced by a publisher into a single product, or subject-based subsections" (Nabe 2001). This increasingly popular subscription practice raises serious concerns as important collection development decisions are surrendered to large monopolizing publishers, and non-profit societies or university presses are threatened by the increasing power of commercial publishers to control the information market (Frazier 2001; Nabe 2001). Granovetter (1982) points out that change is more likely to originate in the margins of scientific networks; therefore, it is critical that libraries play a role in facilitating access to information in the margins. Information, particularly in medical fields, must be viewed as a 'work in progress.'

The biomedical model is entrenched within the generally accepted context of medical research. This is changing as medical authors and groups begin to incorporate research from the social sciences into the body of knowledge that forms the basis for clinical practice (Flint and Samil 1990; Shtarkshall et al. 2002). Although it is recognized that well designed systematic reviews and meta-analysis (Egger, Smith, and Phillips 1997) are valuable tools for evaluating the published literature as a whole, it is important to recognize that a variety of research methods will best serve clinicians and patients by allowing expression of diverse models and varied perspectives. Information obtained from qualitative research and some quantitative methods cannot be easily combined for meta-analysis, and yet they make important contributions to knowledge and often express views that do not fit within the biomedical context. Examination of texts is "extremely beneficial as a means of highlighting representations of an issue that are dominant at a particular time" (Lyons and Griffin 2003, 1640) and content analysis is a useful means by which both quantitative and qualitative information presented in medical and consumer publications can be evaluated and understood as a whole.

A qualitative study of primary care physicians found that evidence-based medicine was associated with randomized controlled studies or systematic reviews, and that doctors were unaware of evidence from qualitative research (Freeman and Sweeney 2001). Information professionals working with researchers and clinicians can facilitate awareness of diverse theoretical perspectives and research methods, and their potential role in the accumulation of holistic scientific knowledge. Librarians working with lay individuals can facilitate the use of scientific publications or consumer health information by teaching users to seek varying perspectives and diverse resources, and to critically evaluate accessed information.

### Conclusion

This exploratory study reinforced the importance of context as it is expressed in medical and consumer articles, and demonstrated that published literature plays a role not only in providing information and reinforcing knowledge, but also produces and shapes meaning, and creates belief. These findings challenge librarians and information professionals to recognize the importance of information context as they seek to facilitate access to and use of published scientific information by both professionals and consumers.

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