

DETERMINGING SUPPORT FOR THE HNAP MODEL: AN INTEGRATIVE
REVIEW OF THE LITERATURE

by

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ABSTRACT

In 1998 Buehler, Malone, and Majerus used grounded theory to derive the Symptom Action Time-Line (SATL), a linear process involving self-care, lay care, and professional resources used by rural Montana women to respond to physical illness symptoms. In 2010 (O'Lynn), a literature review to determine the level of support for the SATL process resulted in a more circular model called the Symptom Action Process (SAP). An integrative literature review in 2012 was conducted to determine the level of support for the SATL and SAP models, resulting in a revision, named the Health Needs Action Process (HNAP) (Rasmussen, Winters, & O'Lynn, 2013). The HNAP differed from the SATL and SAP in that the term *symptom* was replaced with *health need* to reflect a broader spectrum of health demands including psychological needs. All three models, SATL, SAP, and HNAP, were based on studies in the United States (U.S.). The HNAP included studies with women-only and mixed gender samples. The lack of international and male-only samples in the previous work prompted this integrative literature review to determine support for the HNAP model.

Key words from the models (rural, rural health, self-care, health needs, health/illness behavior, attitudes/beliefs about self-care, decision-making, self-assessment, alternative therapies, complimentary medicine, and home remedies) were used to search the literature published from 2004-2013 using CINAHL, MedLine, and Psych Info. International studies and those involving men only were included in the new search. Case studies, dissertations, and anecdotal reports were excluded from the integrative review. Inductive and deductive coding was used to identify existing and new concepts/themes. The sample consisted of 17 studies: 29% were from the U.S. (17 states); 71% were conducted outside the U.S. (10 countries). Study samples included 23.5% women, 11.5% men, 65% mixed gender; 29% elderly, 71% adult, 0% children/youth; 71% rural; and 29% compared rural with urban samples.

This integrative review provides support for the HNAP model regarding the use of self-care, lay resources, and professional resources when responding to both *physical and psychological health needs*. Health care providers can use this knowledge to assist rural persons to successfully manage health needs both domestically and internationally.

CHAPTER 1

INTRODUCTION

Buehler, Malone, and Majerus (1998) proposed an initial model called the *Symptom-Action-Time-Line* (SATL) (APPENDIX A) outlining how rural dwellers recognize illness symptoms and the process rural dwellers go through in relieving those symptoms (Buehler et al., 1998; O'Lynn, 2010; Rasmussen, Winters, & O'Lynn, 2013). Such a model is significant because it can aid the provisional framework from which health care providers can better assess an individual's interpretation and response to symptoms and then work with them to more accurately interpret symptoms and choose responses that optimize health outcomes. The SATL model also provides health care providers a rural framework to better assess all resources available to individuals (such as self-care or lay resources) that might be tapped to resolve health problems and provide emotional support during illness. Buehler et al. recommended that additional research be conducted to validate the use of their SATL process model for rural dwellers.

O'Lynn (2010) examined the SATL process and made several recommendations that would allow the model to be used in future rural studies (Rasmussen et al., 2013). Overall, O'Lynn's literature review supported the SATL process; however, the SATL model was revised and renamed the *Symptom Action Process* (SAP) (APPENDIX B). O'Lynn intended the SAP model to be more inclusive of the various rural subgroups and their health behaviors including holistic health needs. In addition, findings from O'Lynn's study using the new SAP model was theorized to provide health professionals

and policy makers a better understanding of how health needs are manifested and interpreted in rural settings (O'Lynn, 2010; Rasmussen et al., 2013).

In 2012, Rasmussen et al. (2013) conducted an integrative literature review designed to examine the level of support for the SATL process (Buehler et al., 1998) and O'Lynn's (2010) SAP model. Specifically addressed were the recommendations proposed by O'Lynn to: (a) Expand the definition of a symptom to include not only physical but psychological symptoms as well; (b) expand the definition of symptom to be more reflective of an overall health need so that self-care measures to prevent illness or promote health are involved; (c) recognize that intentionally ignoring a health need is a type of self-care action, especially when mental health needs are involved; (d) surround the proposed model within an environmental context external to the decision tree to account for demographic variables, access to resources, etc.; (e) design the model to be more circular in nature, allowing for sequential or concurrent health-related actions; and (f) rename the SATL model The Symptom-Action Process (SAP) (O'Lynn, 2010; Rasmussen et al., 2013). To be consistent with the reviews leading to the SATL and SAP models, Rasmussen et al. only reviewed studies conducted within the U.S.

Based on the findings from the integrative review of the literature conducted by Rasmussen et al., (2013) it was recommended that the SAP model be expanded and renamed the *Health Needs-Action-Process* (HNAP) model in order to incorporate all holistic aspects of the above. Furthermore, Rasmussen et al. proposed that an additional review be conducted of studies with domestic and international rural populations and include studies with men only to explore support for the revised model.

Purpose

The purpose of this integrative review was to evaluate the current domestic and international literature to further evaluate empirical support for the HNAP model in rural men and women both domestically and internationally.

Background and Significance

Based on an integrative review of the literature (March 2012), Rasmussen et al. (2013) proposed renaming the SAP model the HNAP model. By replacing the term *symptom* with *health need* it was theorized that the model would more accurately reflect a broader spectrum of rural health demands including psychological and physiological acute and chronic conditions. The HNAP is more circular in nature than the SAP model (APPENDIX C) to include utilization of multiple health need resources at varying stages in health management. Rasmussen et al.'s integrative review of the literature included studies done only domestically, and with mixed-gender and women-only samples.

The SATL process, SAP, and HNAP models depict a process in which an individual identifies a problem or health need and takes action(s) to address it. As such, these models attempt to describe the behaviors of all individuals, although how actions are taken may differ across populations. In the U.S., models can provide insight and support regarding cultural practices, beliefs, and decision making processes in rural dwellers for overall health promotion, illness prevention, and treatment using a holistic interpretation. An integrative review of the literature can summarize past empirical and theoretical literature and provide a more comprehensive understanding of a phenomenon

of interest (Whittemore & Knafl, 2005).

Definition of Terms

External context & variables: environmental context external to the decision tree that allows for variables such as gender, culture, race or ethnicity, socioeconomic status, family or social role, residential location, and barriers in accessing resources, account for which health need action is taken (O'Lynn, 2010).

Health literacy: the extent to which people have the capacity to obtain basic health information; the ability to process and understand information so that they can make informed decisions about their health (O'Lynn, 2010; Rasmussen et al., 2013).

Health needs: a biophysical need, as well as spiritual, emotional, social, and psychological need (O'Lynn, 2010; Rasmussen et al., 2013).

Health Needs Action Process (HNAP): a circular rural model that proposes health care need behaviors of domestic and international men and women's individual and mixed perspectives; similar to SAP but has replaced *symptom* with *health need* to more accurately reflect a broader spectrum of rural health demands including psychological and physical acute and chronic conditions (Rasmussen et al., 2013).

Integrative review: a method that includes and synthesizes both experimental and nonexperimental research, such as qualitative studies (Whittemore & Knafl, 2005).

Lay resources: a type of resource that provides a validation of symptom interpretation, advice and emotional support, and physical care not reimbursable for services (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013).

Professional resources: a type of resource/service provided by a professional which evaluates and treats health needs; reimbursable for services rendered (O'Lynn, 2010; Rasmussen et al., 2013).

Reactive care: care intended to detect and treat or cure acute conditions that were not prevented (DuongTran & Garcia, 2009).

Rural: a term used to search literature and included in all studies reviewed that defined the population as such (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013).

Self-care: first action taken after identifying a symptom; a myriad of activities initiated and performed by an individual to relieve a symptom (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013).

Self-efficacy: measures of one's beliefs in the ability to complete tasks, understand information, and reach goals (Rasmussen et al., 2013).

Symptom: an alteration in the usual state of health requiring action; physical signs and sensations that have a degree of interference with the person's usual or desired level of function; and, intensity and duration of the symptom (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013).

Symptom Action Process (SAP): a circular mixed gender perspective that allows for multiple actions including: 1) self-care, 2) lay resources, and 3) professional resources to be incorporated in a sequential or concurrent fashion (O'Lynn, 2010; Rasmussen et al., 2013).

Symptom Action Time-Line (SATL): a linear model of women's only perspectives that encompasses four phases: 1) symptom identification, 2) self-care, 3) lay resources, and 4) professional resources (Buehler et al., 1998; O'Lynn 2010; Rasmussen et al., 2013).

Symptom identification: an awareness of an alteration in the usual state of health requiring some type of action (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013).

CHAPTER 2

REVIEW OF LITERATURE

SATL Process

There are four phases to the SATL process: (a) *Symptom identification*, (b) *self-care*, (c) *lay resources*, and (d) *professional resources and services* (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). Preceding the process is the occurrence of a symptom, defined as an alteration in the usual state of health requiring action. If the individual does not recognize the symptom (symptom identification), the SATL process does not continue. It is important to note that a *symptom* was defined as a negative entity and the SATL process as one of resolving a problem (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013).

There are three general components of a symptom: (a) Physical signs and feelings, (b) a level of interference with the person's usual or desired degree of functioning, and (c) amount and duration of the symptom (Buehler et al., 1998; O'Lynn 2010; Rasmussen et al., 2013). These three characteristics, along with a person's prior experience and knowledge of the symptom, were used in assigning meaning to the symptom. Based on this meaning, it was theorized that an individual will decide whether to take action or not (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). According to Buehler et al., self-care would be the first action taken after identifying a physical symptom.

Self-care refers to the numerous self-activities initiated and performed by an

individual to relieve a symptom (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). For rural individuals relying upon others for their health needs (e.g., dependent children and elders), family members or other caretakers would be responsible for initiating actions in order to address an identified symptom. Self-care activities were described to include applying home remedies, taking over-the-counter medications and herbal preparations, using the Internet or reading reference books to learn more about the symptom and symptom resolution (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). Self-care activities and all other actions taken in the SATL process were theorized to be evaluated by the individual in terms of efficacy, and a decision was made to proceed through the SATL process, alter actions, or cease activities (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013).

Family, friends, and neighbors are consulted if self-care activities do not resolve a symptom to the individual's satisfaction. *Lay resources* are then used to provide (a) interpretation and validation of the symptom(s), (b) guidance and emotional support, and (c) care of physical health needs (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). Although not defined by Buehler et al., lay resources are not financially reimbursed for their services, unlike that of professional resources (O'Lynn, 2010; Rasmussen et al., 2013). If symptoms do not resolve, intensify, or additional health symptoms occur, professional resources are then sought. If professional resources cannot provide symptom resolution, individuals may then seek additional professional resources.

The time it takes to navigate through the SATL process was influenced by the duration and severity of a symptom and the degree to which the symptom interferes with

usual functioning (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). Actions are notably implemented more quickly when a symptom is particularly intense, greatly interferes with usual functioning, or when children are involved (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). If the symptom is construed as an emergency, the individual may seek professional care immediately, thus bypassing the early phases of the SATL process. However, Buehler et al. noted that if the SATL process is completed in its totality, the time from symptom identification to self-care can take up to two days; from symptom identification to lay resources can take from 1–3 days; and from symptom identification to use of professional resources can take from 4–14 days (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). Individual progression through the SATL process was theorized to have great implications for health care providers and researchers (Buehler et al., 1998; O'Lynn, 2010; Rasmussen et al., 2013). O'Lynn and Rasmussen et al. noted the linearity and lack of reference to health prevention and health promotion activities utilized by rural dwellers as a major limitation in the model. These limitations were addressed in the SAP model proposed by O'Lynn and the HNAP model proposed by Rasmussen et al., which accounted for health promotion and prevention and incorporated a holistic multi-therapeutic circular approach.

SAP Model Process

A literature review of 36 research reports conducted by O'Lynn (2010) to determine support for the SATL process found general support for the process proposed by (Buehler, et al., 1998). However, the following limitations in the SATL model were

identified: (a) the definition of symptom was quite narrow and excluded psychological health issues, (b) the process was sequential and best used for a single symptom or injury making application to multiple symptoms associated with chronic illness problematic; (c) ignoring a symptom was not recognized as a response to illness; (d) illness prevention and health promotion behaviors were not addressed; and (e) discussion of the influence of rural context on timing and progression through the process was needed. O'Lynn recommended renaming SATL to SAP, *Symptom Action Process* to the SATL model, and changing *symptom* to *health need* (O'Lynn, 2010; Rasmussen et al., 2013). A *health need* was described as being a biophysical need, as well as a spiritual, emotional, social, and psychological need (O'Lynn, 2010; Rasmussen et al., 2013). It was suggested that a health need was viewed more holistically than a symptom and would provide a broader perspective of rural dwellers response to perceived health and wellness needs (O'Lynn, 2010; Rasmussen et al., 2013). The inclusion of psychological symptoms (such as those typically seen in depressive and anxiety disorders) was vital because mental health services are often unavailable or implemented poorly in rural communities (DeLeon, Wakefield, & Hagglund, 2003; Dobalian, Tsao, & Radcliff, 2003; Haard & Anderson, 2004; Kane & Ennis, 1996; National Institute of Nursing Research, 1995; O'Lynn, 2010; Rasmussen et al., 2013).

In contrast to the linear SATL process proposed by Buehler et al. (1998), O'Lynn's (2010) SAP model included a circular process that allowed for multiple actions – self-care, lay resources, and professional resources - to be incorporated in a sequential *or* concurrent fashion. This circular approach was different than the SATL process which

detailed the linear process of resolving a single symptom or health problem, e.g. fever or broken bone. The SAP was proposed to be used by individuals for multiple symptoms, an important consideration when responding to acute and chronic illnesses. Chronic conditions, such as diabetes or congestive heart failure, are characterized by the recurrence of multiple symptoms with varying degrees of intensity and duration (O'Lynn, 2010; Rasmussen et al., 2013). O'Lynn theorized that the more circular SAP model could readily explain how an individual might use prayer, hot packs, support from friends, prescription drugs, and physical therapy concurrently to manage an illness or injury, and varies the use of these strategies over time as health needs might wax and wane.

Most studies reviewed by O'Lynn (2010) were descriptive and cross-sectional in design with small samples of elderly participants, few men, and conducted wholly within the U.S. without the participation of Asian or Pacific Islanders. O'Lynn recommended additional research to establish support for the SAP model to address these limitations.

HNAP Model Process

In March 2012, an integrative literature review of 21 studies published between July 2004 and March 2012 was conducted by Rasmussen et al. (2013). Similar to O'Lynn's (2010) study, the Rasmussen et al. integrative literature review found studies that were descriptive and conducted wholly within the U.S. without the participation of Asian or Pacific Islanders. Different from the SATL or SAP, the HNAP replaces *symptom* with *health need* to more accurately reflect a broader spectrum of rural health

demands including psychological and physiological acute and chronic conditions (APPENDIX C).

Different from the SATL, yet similar to the SAP, the HNAP model is circular in nature to accommodate for multiple concurrent uses of resources to meet health needs. The HNAP attempts to provide a better understanding of how rural health needs (physical and psychological) are manifested and interpreted. Illness prevention and health promotion behaviors are also important so as to enhance overall wellness in the HNAP model. The HNAP identifies health needs as a more holistic process than the SATL or SAP and provides a broader perspective of rural responses to perceived health and wellness needs. The inclusions of psychological symptoms are an important addition to the HNAP because mental health resources and options are often unavailable or limited (geographically or stigmatically) in rural communities.

Differences between the SAP and HNAP Models

The SAP and HNAP models are similar in all aspects of identification, decision making processes, and actions taken by rural dwellers. However, the main difference between them is the replacement of the term *symptom* with *health needs* in order to include physical and psychological health conditions and states (Rasmussen et al., 2013). Appendix C shows a graphic depiction of the HNAP model. The action process of the HNAP is embedded in an external context identical to the SAP model. External context and variables vary depending upon geographic variables such as distance, access to health care resources, and economic resources available. Both models are equally embedded within an environmental context external to the decision tree that allows for a

variety of variables such as gender, culture, race/ethnicity, socioeconomic status, family or social role, residential location, barriers in accessing resources, etc. (O'Lynn, 2010; Rasmussen et al., 2013). These are important features of both models and provide a foundation for which type of action is then sought. Once health needs are identified in the HNAP model, individuals may incorporate various types of actions: (a) Self-care, (b) lay resources, or (c) professional resources in a sequential or concurrent fashion (Rasmussen et al., 2013). Circumstances will influence which action, or combination of actions, is taken. The slanted nature of the action types will reflect the inclination to progress from self-care to lay resource use to professional resource use. Double arrows between action types account for adaptable movement among aspects of the model and concurrent use of types of actions. More explicit in this model are the arrows leading from the action types back to the symptom occurrence aspect of the model (Rasmussen et al., 2013). These arrows close the circle of the process and account for symptoms which might recur, new symptoms that could develop, or new actions resulting from new information or previous actions taken by an individual (Rasmussen et al., 2013).

A limitation of the SATL process model is Buehler et al.'s (1998) lack of attention to symptoms that are recognized as problematic but ignored. For example, one may recognize a self-limiting symptom such as a strained muscle, but choose no action to relieve the strain. This concept was present in the HNAP findings as well (Bourne et al. 2010; Charles et al., 2008; DuonTran et al., 2009; Shaikh et al., 2008; Shaw et al., 2008; Thomlinson et al., 2004).

Current Study

This current integrative review included international and domestic studies whereas the previous reviews (of SATL, SAP, and HNAP) did not. In addition none of the prior reviews addressed men's individual perspectives and only addressed mixed and women's individual perspectives of how health needs are met rurally. This current integrative review addresses men's individual perspectives, mixed perspectives, as well as individual women's perspectives. Specific timelines are not part of the HNAP. However, timeline tenets similar to the SATL referring to the use of professional services are reviewed in this integrative process.

CHAPTER 3

METHODS

In September 2013 a search of peer-reviewed resources contained in the Cumulative Index to Nursing and Allied Health Literature (CINAHL), MedLine, Psych Info, and PubMed was conducted to locate research-based support for the SATL process, SAP, and HNAP models. Research published from July 2004 through September 2013 was targeted using the keyword of *rural* and its associated keywords of *rural health*, *rural environment*, *rural community*, *frontier*, and *rural populations*. Rural keywords were the primary sorting category to ensure that the literature would be salient to rural dwellers. Rural keywords were then combined with other keywords, based on available keyword search options within each database, that were suggestive of the SATL process, SAP, and HNAP models including *self-care*, *lay resources*, *health needs*, *health behaviors*, *illness behavior*, *attitudes and beliefs for self-care*, *decision-making*, *self-assessment*, *alternative therapies*, *complimentary medicine*, and *home remedies*. The search yielded a total of 1,412 journal articles.

From the 1,412 articles, dissertation abstracts, case studies, and anecdotal reports were excluded resulting in a new pool of 30 research-based journal articles. The 30 articles were critically reviewed using a process similar to that used by Rasmussen et al. (2013), excluding articles that did not address components relevant to the SATL process, SAP, and HNAP models and studies that focused only on health care providers. The final sample of articles for review included 17 research reports.

Data Analysis

Elimination and data analysis were done using an inductive and deductive process. Each article was read fully; identifying existing concepts in the SATL, SAP and HNAP models were also identified. The existing and new characteristics, themes and/or barriers (Table 1), were evaluated for linkages to the HNAP model to further elucidate rural health needs patterns of men and women. The process was used to determine the level of international and domestic support of the HNAP model.

Table 1. Participants' Demographic Characteristics from Current HNAP Review (N=21 studies in *Group A*; N=17 studies in *Group B*)

	<i>A</i>	<i>B</i>		<i>A</i>	<i>B</i>
Characteristics	n=21	n=17		%	%
<u>Gender</u>					
All female	6	4		29%	23.5%
All male	0	2		0	11.5%
Mixed	15	11		71%	65%
Mean Age Group A	63.12 years (N=20)				
Mean Age Group B	50.50 years (N=11)				
<u>Race/Ethnicity</u>					
All non-Hispanic White	3	0		14%	0
Mixed	13	5		62%	29%
All Minority	2	5		10%	29%
Unknown	3	7		14%	41%
US States Represented	14	17		28%	34%
Countries Represented	1	12		.01%	.06%

CHAPTER 4

RESULTS

There were 17 studies published between July 2004 and September 2013 that were included in the review. Participants in these studies represented the following states in the United States: California, Indiana, Iowa, Kentucky, Louisiana, Main, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New York, North Carolina, Ohio, Oregon, South Dakota, and West Virginia. International countries included: Australia, Bangladesh, Canada, England, Haiti, Jamaica, Mexico, Nigeria, Pakistan, and Senegal. The mean age of the rural dwellers was 50.5 years compared to 63.12 years in the original HNAP literature review. The Buehler et al. (1998) study did not include age ranges therefore this study was not included in the current review's mean age calculation. Table 1 shows the gender and racial or ethnic characteristics of the participants in both the Rasmussen et al. (2013) review (Group A on Table 1 and 2) and the current integrative review (Group B on Table 1 and 2). Absent in this integrative review were Asian or Pacific Islanders. Otherwise, non-Hispanic Caucasian, African American, African, Native American, Hispanic, Mennonite, Aboriginal, Haitian, Indian, Hmong, Caribbean, Bengali Tribal, and Pakistani participants were well represented.

Of the 17 studies reviewed, four (4) or 23.5% minimally supported the tendency to use self-care and lay resources before going to a health professional for non-emergent symptoms experienced by adults (DuongTran & Garcia, 2009; Franckel & Lalou, 2009; Rahman, Kielmann, McPake, & Normand, 2012; Shaw, Brittain, Tansey, & Williams,

2008). However, none of these studies described or tested a comprehensive process of health needs identifications and actions with a timeline.

The majority of the studies reviewed confirmed the *use of self-care strategies* to treat symptoms (Avery, Escoto, Gilchrist, & Peden-McAlpine, 2011; DuongTran & Garcia, 2009; Grzywacz, Stoller, Brewer-Lowry, Bell, Quandt, & Arcury, 2012; Kemppainen, Taylor, Jackson, & Kim-Godwin, 2009; Mackichan, Paterson, Henley, & Britten, 2011; McLaughlin, Lui, & Adams, 2012; Rahman et al., 2012; Shaikh, Haran Hatcher, 2008; White, Small, Frederic, Joseph, Bateau, & Kershaw, 2006). Many of the studies supported the self-care strategies described by Buehler et al. (1998), O'Lynn (2010), and Rasmussen et al. (2013) including taking over-the-counter medications, herbal remedies, complementary and alternative medical (CAM) strategies, and family remedies; referring to health information sources via the Internet, books and television; and using physical treatments (e.g., heating pads, stretching, massage, or yoga) (Rasmussen et al., 2013). A number of authors reported the value of prayer and spirituality as self-care strategies (Kemppainen et al., 2009; Rahman et al., 2012; Shaikh et al., 2008; Thomlinson, McDonagh, Crooks, & Lees, 2004).

Support for the *use of lay resources* in managing symptoms was also found in the integrative literature review. Primarily, researchers reported the strategies of soliciting the assistance and support of friends and family in managing symptoms and in using formal support groups (Avery et al., 2011; DuongTran & Garcia, 2009; Kemppainen et al., 2009; Mackichan et al., 2011; McLaughlin et al., 2012; Rahman et al., 2012; Shaikh et al., 2008; Thomlinson et al., 2004). In addition, in only 1 (6%) study researchers

reported the progression of self-care to lay resource use (McLaughlin et al., 2009), and no studies reported the progression to lay resources use after self-care had failed or the use of lay resources prior to the use of professional resources.

Overall, the results of this study found that *professional resources* were utilized after self-care or lay resources were used. Some of the studies reviewed included the use of complementary or alternative therapies to manage symptoms (Bourne et al., 2010; Charles, Udonwa, Ikoh, & Ikpeme, 2008; DuongTran & Garcia, 2009; Franckel & Lalou, 2009; Grzywacz et al., 2012; Mackichan et al., 2011; McLaughlin et al., 2012; Rahman et al., 2012; Shaikh et al., 2008; Thomlinson et al., 2004). In addition to spiritual interventions noted previously, professional services such as those provided by a masseuse, acupuncturist, naturopath, chiropractor, and herbalist were also used. Professional resources were also utilized if symptoms persisted (Bourne et al., 2010; Charles et al., 2008; DuongTran & Garcia, 2009; Franckel & Lalou, 2009; Kosberg et al., 2010; Mackichan et al., 2011; Rahman et al., 2012; Shaikh et al., 2008; Thomlinson et al., 2004; White et al., 2006).

None of the researchers of the studies reviewed provided specific time frames for utilizing resources as described by Buehler et al. (1998). However, research results did support the timeline tenets within the SATL process particularly those referring to the use of professional resources: (a) Progression to and direct utilization of professional resources was quicker if symptoms involved children (Buehler et al., 1998; Charles et al., 2008; Franckel & Lalou 2009; Rahman et al., 2012; Rasmussen et al., 2013; Shaikh et al., 2008), (b) were perceived as emergent or crisis in nature (Bourne et al., 2010);

DuongTran & Garcia 2009); Franckel & Lalou 2009); Rahman et al., 2012; Rasmussen et al., 2013; Shaikh et al., 2008; Thomlinson et al., 2004; White et al., 2006), and (c) the individual perceived a need for a prescription to treat the symptom (Bourne et al, 2010; Buehler et al., 1998; Franckel & Lalou, 2009; Mackichan et al., 2011; Rasmussen et al., 2013; Shaikh et al., 2008).

Buehler et al. (1998) reported that if *professional resources* were not effective in relieving symptoms, participants continued to work with the professional, seek another professional (particularly a provider of alternative therapy), or accept the symptom's non-resolution. As noted by O'Lynn (2010), Rasmussen et al. (2013) and also found in the studies reviewed was that researchers did not address this specific decision point in the same fashion. However, a number of researchers reported the concurrent use of multiple strategies, including complementary or alternative therapies (Bourne et al., 2010; Charles et al., 2009; DuongTran & Garcia, 2009; Franckel & Lalou, 2009; Grzywacz et al., 2012; Mackichan et al., 2011; McLaughlin et al., 2012; Rahman et al., 2012; Shaikh et al., 2008; Thomlinson et al., 2004). It was also noted that symptom identification without action was a process used by rural people.

Differences in how women and men identified symptoms and took action were documented in two studies (Bourne et al., 2010; Grzywacz et al., 2012). The HNAP model applies to both groups equally. A table of characteristic variables pulled from the integrative literature review is displayed in Table 2.

Table 2. Comparison characteristic variables found in the HNAP review
(N = 21 studies Group A and N= 17 studies Group B)

Characteristic variables	A	B	A%	B%
	N=21	N=17		
Self-care resources utilized	18	9	86%	53%
Lay resources	18	8	86%	47%
Decision making process:				
Health	17	15	81%	88%
Mental Health	0	3	0	18%
Rural population only	16	12	76%	71%
Multiple strategies used	15	10	71%	59%
Self & lay care used before professional services	13	1	62%	6%
Health promotion	11	4	52%	23.5%
Barriers to care	11	8	52%	47%
Lay resources to professional	9	0	43%	0%
Cultural beliefs	8	8	38%	47%
Symptom-action process	7	4	33%	23.5%
Discussed				
Use of CAM therapies	7	10	33%	59%
Rural vs. non-rural population	5	5	24%	29%
Prayer/Spirituality self-care	4	4	19%	23.5%
<i>Direct use of professional services when:</i>				
Children are involved	1	4	5%	23.5%
Prescription is needed	3	4	14%	23.5%
Loss of work possible	3	3	14%	18%
Pain	0	3	0	18%
Acute need	0	7	0	41%

Summary of Literature

Women and HNAP Model

In terms of gender, women were well represented in the sample including four (4) studies in which women were studied exclusively (Avery et al., 2011; McLaughlin et al., 2012; Simmons, Anderson, & Braun, 2008; White et al., 2006). Avery et al. noted that women were more likely than men to report using the Internet to access health information. Women sought health information from a wide range of formal and informal sources including media, peers, Internet, and health care providers. Some of the factors influencing women's decision making and health needs action process were noted as: 1) confusion and information overload, 2) lack of time for adequate self-care, 3) being able to afford the health care services, 4) distance to the health care facility, 5) perceived quality of care, and 6) being able to identify the health need condition needing resources (self-efficacy) (Avery et al., 2011; McLaughlin et al., 2012; Simmons et al., 2008; White et al., 2006). Rural women's level of embarrassment influenced mental health pattern behaviors, but not their physical health pattern behaviors. An interesting finding in this integrative review is that stigma and embarrassment influence health pattern behaviors in rural women diagnosed with depression and other mental health issues (Green et al., 2012; Grzywacz et al., 2012; Kemppainen et al., 2009; Kosberg et al., 2010).

Men and HNAP Model

The current integrative literature review returned two (2) studies that focused exclusively on men (Bourne et al., 2010; Kosberg & Sun, 2010). Including men

exclusively was important because Sellers et al. noted that although both men and women may rely on self-care and lay resources before utilizing professional resources, men may interpret symptoms very differently and delay use of professional resources as long as possible (Levant & Habben, 2003; Sellers et al., 1999). Health literacy influenced the lifestyle practices of men (55 and older) and impacted their health needs decision making process (Bourne et al., 2010). In addition, one study noted that rural men were likely to delay seeking health care until a condition had become advanced or urgent, or until multiple chronic conditions exist (Bourne et al., 2010). Cultural factors influenced a rural man's decision to seek medical help. Strong social ties and cultural traditions could provide a reservoir of lay knowledge that could be used instead of seeking professional services. In the Bourne et al. study, one-tenth of the male respondents used home remedy self-care and lay care resources before seeking professional services.

Several factors are involved in the decision making process in regards to mental health needs action in rural men. Stereotypes of rugged, strong, and tough male farmers embody the virtues of independence, self-sufficiency and self-reliance (Kosberg & Sun, 2010). Thus an erroneous conclusion can be reached that rural men do not have mental health problems. Indeed, rural men may have mental health needs but fail to recognize the condition as a problem, or admit having a problem, and rarely seek professional assistance (Kosberg & Sun, 2010). Conditions in rural areas might severely affect rural men who were raised to define themselves by their physical toughness, emotional control, independence, and stoicism, and for whom there exists a social and psychological stigma in admitting the presence of a mental health need and in seeking lay resources and/or

professional services. One study noted that rural men often ignore their symptoms of physical or mental health problems, engage in denial, embarrassment, stoicism, or turning to destructive coping mechanisms (such as alcohol or drugs) (Kosberg & Sun, 2010). Men's failure to define a condition as a problem, failure to recognize distress, difficulty in admitting having a problem, and reluctance to use rural community services and certain forms of interventions was tied to their perception of the presenting problem being "normal" as well as feelings that the problem is not a threat to his "ego" (Kosberg & Sun, 2010). This was especially true when seeking care for mental health needs services.

Based on the integrative review of the literature, rural health needs of men differed from those of women in that men sought additional resources if they perceived no loss of control in the helping process, male friends would not make fun of them, and there was an opportunity for reciprocity (i.e., as a volunteer, offering a donation) (Bourne et al., 2010; Grzywacz et al., 2012; Kemppainen et al., 2009; Kosberg & Sun, 2010). In addition, the literature pointed out that there is little difference in rural men from the U.S. versus diverse countries when it comes to the decision making process and the health needs action process (Kosberg & Sun, 2010). Overall, rural men under use mental health services compared to rural women. This information adds great value to the HNAP model. Consequently, men did not incorporate time frames for actions and often delayed care as compared to women (Bourne et al., 2010; Kosberg et al., 2010) for either physical or psychological health needs action.

Cultural, social, and family influences shape attitudes and beliefs and therefore health-related knowledge and behaviors. Socioeconomic status, gender, and race along with mass culture as represented by advertisers, news, and a plethora of health information sources available through electronic channels are also integral to the sociocultural landscape of health behavior (DuongTran & Garcia, 2009). Perceptions of health needs may be influenced by ethnicity and culture in a variety of ways, including how health needs are recognized, what they are attributed to, how they are interpreted, and when services are sought. Reactive care is defined as “care intended to detect and treat or cure acute conditions that were not prevented” (DuongTran & Garcia, 2009, pg. 7). In contrast, preventive health care includes practices intended to promote health and manage health risk behaviors and diseases. Minorities are more likely than non-Hispanic whites to practice reactive health care (DuonTran & Garcia, 2009) after they have utilized self-care and lay resources (Bourne et al., 2010; DuongTran & Garcia, 2009; Rahman et al., 2012; Shaikh et al., 2008).

Themes

Self-Efficacy and Stigma

Review of the integrative literature found self-efficacy and health behavior patterns to be similar when comparing rural and non-rural dwellers compliance with personal health needs management and allows for prevention and management of various health needs including psychological (Avery et al., 2011; Grzywacz et al., 2012; McLaughlin et al., 2012; Thomlinson et al., 2004). Rural men underreported and used

fewer services than rural women, especially when it came to mental health needs. Mental health stigma or embarrassment for utilization of mental health services were noted in both women and men. Men tended to utilize fewer services due to stoicism and ego; whereas women had embarrassment due to mental health stigma but still pursued resources and services.

Acute and Chronic Conditions

The emphasis on the time-line aspect of the SATL process model is problematic, in that it suggests a rather linear progression through phases of symptom identification and actions are taken while previous strategies may be abandoned because of unsatisfactory outcomes. This integrative review confirms findings from Rasmussen et al. (2013) and concurs with O'Lynn (2010) that the literature reviewed did not support the linearity of the SATL process; rather multiple modes of treatment are utilized singularly or concurrently. This integrative review also supports O'Lynn in that as rural dwellers become more educated and familiar with interpreting and identifying recurring health symptoms, they may bypass self- and lay-care and go directly to professional resources. This is more prevalent in those suffering from chronic conditions (Simmons et al., 2008) than those with acute conditions requiring immediate or more rapid action (Bourne et al., 2010; Charles et al., 2008; DuongTran et al., 2009; Franckel & Lalou, 2009; Kosberg et al., 2010; Rahman et al., 2012; Shaikh et al., 2008; Shaw et al., 2008; Thomlinson et al., 2004). Stoller et al. (1999) described older rural adults who were managing both new symptoms and chronic diseases as a "bricoleur" – a kind of informal professional do-it-yourself person who blends information gathered from multiple

sources. Managing the process of chronic symptoms and new health needs is well identified in the HNAP model.

Children, Emergent Conditions,
Loss of Work, or Need for Prescription

Buehler et al. (1998), O'Lynn (2010), and Rasmussen et al. (2013) all noted that time frames for action were influenced by whether or not the symptoms were associated with children or with emergent conditions. This integrative review agrees with this process (Charles et al., 2008; Franckel & Lalou, 2009; Rahman et al., 2012; Shaikh et al., 2008). In addition as noted previously, others have suggested that time frames for action are also influenced by whether or not symptoms required a prescription or caused one to miss work (Buehler et al., 1998; Franckel & Lalou, 2009); Mackichan et al., 2011; Shaikh et al., 2008).

Perceived barriers such as pain (DuongTran & Garcia, 2009; Kemppainen et al., 2009; Thomlinson et al., 2004) or lack of information and health knowledge (Bourne et al., 2010; DuongTran & Garcia, 2009; Grzywacz et al., 2012; Kemppainen et al., 2009; Rahman et al., 2012; Shaikh et al., 2008; Shaw et al., 2008; White et al., 2006) were noted in the studies reviewed. Lack of information and knowledge coupled with pain was found to be related to health promotion activities in elders (Grzywacz et al., 2012; McLaughlin et al., 2012; Thomlinson et al., 2004; White et al., 2006). In addition, international rural studies showed that men tended to have the final say whether the child went to the doctor or not (Bourne et al., 2010; Charles et al., 2008; Franckel & Lalou,

2008; Shaikh et al., 2008 White et al., 2006). This was likely due to power roles within the family.

Psychological Factors

Psychological wellbeing and the ability of the rural dweller to self-identify their physical health needs (Franckel & Lalou, 2009; Grzywacz et al., 2012; McLaughlin et al., 2012; Simmons et al., 2008) and their mental health needs (Green et al., 2012; Kemppainen et al., 2009) were also noted in the integrative review. This integrative review agrees with O'Lynn (2010) and Rasmussen et al. (2013) and recognized the importance of including psychological symptoms in the model and noted that mental health services are often unavailable or poorly implemented in rural communities. The HNAP model allows for psychological symptomology to be identified and treated alongside of physical symptoms (as would be the case in pain management, depression, and/or anxiety with new onset or chronic disease management). Depression in rural individuals is a growing public health concern and many of the rural people underreport their symptoms due to stigmas and/or a lack of knowledge regarding their symptoms. Often times with depression, anxiety, and other psychological disorders, symptoms present with somatic symptoms as well making it difficult to identify. This integrative review validated that multiple strategies are used (as depicted in the HNAP model) to address both psychological and physical health needs in rural populations.

Other Rural Health Needs Barriers

Several other themes were noted in this integrative review as barriers to seeking health need care. These barriers included: 1) a lack of rural providers (Kemppainen et al., 2009; Kosberg et al., 2010; McLaughlin et al., 2012; Rahman et al., 2012; Simmons et al., 2008; Thomlinson et al., 2004), 2) deteriorating health condition (Bourne et al., 2010; DuongTran & Garcia, 2009; Franckel & Lalou, 2009; Grzywacz et al., 2012; Rahman et al., 2012; Shaw et al., 2008; Simmons et al., 2008; White et al., 2006), 3) financial strain for health services (Avery et al., 2011; Charles et al., 2008; Franckel & Lalou, 2009; Green et al., 2012; Grzywacz et al., 2012; Kemppainen et al., 2009; Shaikh et al., 2008; Shaw et al., 2008; Simmons et al., 2008; Rahman et al., 2012; White et al., 2006), 4) increasing co-morbidities (Bourne et al., 2010; DuongTran & Garcia, 2009; Grzywacz et al., 2012; Simmons et al., 2008), and 5) perceived quality of care (Green et al., 2012; Grzywacz et al., 2012; McLaughlin et al., 2012; Rahman et al., 2012; Shaikh et al., 2008; Simmons et al., 2008; White et al., 2006).

Conclusion

This integrated review of literature found support for the behaviors used in response to health needs identified in the HNAP model (self-care, lay care, and professional resources) and the use of the HNAP in response to physical and psychological rural health needs. Both women and men's individual perspectives were identified as well as the perspective of the elderly. No children or adolescent information was obtained regarding their respective health needs process. A circular versus a linear process was supported in rural individuals both domestically and internationally.

CHAPTER 5

DISCUSSION

Buehler et al. (1998) developed the SATL process model from a grounded theory study in which they described the process that a group of rural Montana women used to respond to health symptoms (Rasmussen et al., 2013). O'Lynn (2010) completed a literature review to determine the level of support for the SATL process and proposed changes resulting in a more circular model called SAP (Rasmussen et al., 2013). Rasmussen et al. conducted an integrative review to determine the level of support for the SATL and SAP models and resulted in the HNAP model. This integrative literature review included 17 research studies located in the CINAHL, MedLine, PsychInfo, and PubMed databases that focused on the process rural dwellers use to respond to health needs. Those studies provide general support for aspects of the SATL process, the SAP model, and the new HNAP model; although in only four (4) studies did researchers describe a sequential process of how rural dwellers respond to health symptoms. The integrative review of literature overall found support for behaviors used in response to health needs identified in the SATL, SAP, and HNAP.

Support from the integrative literature review found the general responses in the process of care was similar in both women and men and includes continuous decision making regarding the level and type of care needed at any given time in the process. Timing of accessing professional resourced differed in international studies where children were involved.

Support for the HNAP is significant because it can aid the provisional framework from which health care providers can better assess an individual's interpretation and response to symptoms and then work with them to more accurately interpret symptoms and choose responses that optimize health outcomes. The HNAP is circular in nature and includes utilization of multiple health need resources at varying stages in health management. Also supported by the integrative review was symptom identification without action was used a process used by rural people. Overall international versus domestic differences was not notable in the integrative review.

An interesting finding in this integrative review is that stigma and embarrassment influenced health pattern behaviors in rural men and embarrassment in women diagnosed with depression and other mental health symptoms (Green et al. (2012); Grzywacz et al. (2012); Kemppainen et al. (2009); Kosberg et al. (2010)). Although both men and women may rely on self-care and lay resources before utilizing professional resources, men may interpret symptoms very differently and delay use of professional resources as long as possible, longer than women. Health literacy influenced the lifestyle practices of men (55 and older) and impacted their health needs decision making process. In addition, one study noted that rural men were likely to delay seeking health care until a condition has become advanced or urgent, or until multiple chronic conditions exist. Cultural factors influenced a rural male's decision to seek medical help. Strong social ties and cultural traditions could provide a reservoir of lay knowledge that can be used instead of seeking professional services.

Several factors were found to be involved in the rural male decision making process with regards to mental health needs actions. Stereotypes of rugged, strong, and tough males embody the virtues of independence, self-sufficiency and self-reliance. Thus an erroneous conclusion can be reached that rural men do not have mental health problems. Indeed, rural men may have mental health needs but fail to recognize the condition as a problem, or admit having a problem, and rarely seek professional assistance. Conditions in rural areas might severely affect rural men who were raised to define themselves by their physical toughness, emotional control, independence, and stoicism, and for whom there exists a social and psychological stigma in admitting the presence of a mental health need and in seeking lay resources and/or professional services. Rural men often ignored their symptoms of physical or mental health problems, engaged in denial, embarrassment, stoicism, or turning to destructive coping mechanisms (such as alcohol or drugs). Men's failure to define a condition as a problem, failure to recognize distress, difficulty in admitting having a problem, and reluctance to use rural community services and certain forms of interventions are tied to their perception of the presenting problem being "normal" as well as feelings that the problem is not a threat to his "ego". This was especially true when seeking care for mental health needs services.

Based on this integrative review of the literature, rural health needs of men differ from those of women in that men seek additional resources if they perceive no loss of control in the helping process, male friends will not make fun of them, and there will be an opportunity for reciprocity (i.e., as a volunteer, offering a donation). In addition, the literature points out that there is little difference in rural men from the U.S. versus diverse

countries when it comes to the overall decision making process and the health needs action process. Overall, rural men are under users of mental health services compared to rural women. This information adds great value to the HNAP model because it allows for enhanced prevention and treatment educational opportunities in the behavioral health arena.

Self-efficacy and health behavior patterns were noted to be similar when comparing rural and non-rural dwellers compliance with personal health needs management. This information allows for prevention and management of various physical and psychological health needs. Bypassing self and lay care and going directly to professional care was found to be true for those with acute conditions requiring immediate or more rapid action. Time frames for action were found to be influenced by whether or not the symptoms were associated with children or with emergent conditions. Time frames for action were also found to be influenced by whether or not symptoms required a prescription or caused one to miss work.

This integrative review validated that multiple strategies are used to address both psychological and physical health needs in rural populations. Several other themes were noted in this integrative review as barriers to seeking health need care. These barriers include: 1) a lack of rural providers, 2) deteriorating health, 3) financial strain for health services, 4) increasing co-morbidities, and 5) perceived quality of care.

This integrative review revealed how interlocking objectives and values combine to influence health needs seeking behavior in rural communities. This further shows that the action process in which rural people seek care is circular and concurrent.

The integrative literature review provides overall support for aspects of the SATL process and the SAP and HNPA models used by rural dwellers. Although none of the researchers contradicted the model proposed by Buehler et al. (1998), O'Lynn (2010), Rasmussen et al. (2013), no researcher discussed or tested a comprehensive process for health needs identification and action. It should be noted, however, that the number of studies reviewed was small (17 compared to original HNAP review of 21). Most of the studies were cross-sectional and descriptive in design, limiting the ability to confirm use of the SATL process or SAP and HNAP model over time. Similar to O'Lynn and Rasmussen et al.'s integrative review, most of the research reviewed had small sample sizes, and focused primarily on rural dwellers over 50 years of age (mean age = 50.5 yrs.). To strengthen O'Lynn and Rasmussen et al.'s review, this integrative review included participants residing outside the U.S. and attempted to focus on men's perspectives. With the exception of the Pacific Islander communities, the integrative literature reviewed represented racial and ethnic diversity including Mennonite, Aboriginal, Haitian, Indian, Latino, Caucasian, American Indian, Hmong, African American, African, Caribbean, Bengali Tribal, and Pakistani population samples. In addition, the integrative literature represented geographic diversity despite external environmental variables.

It is important to note, that while external context and variables may have varied internationally compared to domestically depending upon geographic variables such as distance, gender, culture, ethnicity, socioeconomic status, family or social role, access to health care resources or economic resources. The responses to physical and

psychological health needs were similar among rural men and women in that they were implemented in a circular, rather than a linear manner, and includes continuous decision making regarding the level and type of care needed at any given time.

Implications of the Integrative Review

Nursing Education

The strengthened HNAP model provides important information to include in undergraduate and graduate nursing curricula. Nursing educators can use the model to explain how rural populations respond to their health needs.

Nursing Theory

The results of this integrative review inform Rural Nursing Theory by explicating the process that rural individuals undertake in managing symptoms. By changing symptoms to health needs, the HNAP model of health needs seeking behavior includes responses to psychological issues, making the model more comprehensive. This integrative literature review also has implications for rural policy. The refined health needs action process (HNAP) model provides a foundation for policy makers addressing the needs of rural people around the world.

Clinical Practice

Health care providers can use the HNAP model when assisting rural persons to successfully manage health needs. Understanding the process used by rural dwellers to respond to health needs will allow clinical providers to tailor and provide clinical education specific for rural men and women.

Future Research

This investigator agrees with Buehler et al. (1998), O'Lynn (2010), and Rasmussen et al. (2013) that there is a paucity of published data that describe the *process* rural individuals undertake in managing symptoms/health needs once they have been identified. No changes were added to the current model but the following recommendations are encouraged to further strengthen the HNAP model for use with diverse populations. Research is needed:

1. With a larger sample size including rural men in the U.S. to compare to the international studies already obtained.
2. To explain how rural men and women differ in their overall health needs action process.
3. With Pacific Islander and Asian only rural samples.
4. To compare the rural HNAP model to models used to explain response of urban dwellers.
5. To explore how stigma, embarrassment, and other factors such as lack of anonymity, familiarity, and isolation from lay resources influence individuals' recognition and response to health needs.
6. To re-examine newly identified rural barriers (such as lack of providers, financial strain, etc.) and their effect on the HNAP model.
7. To test the HNAP model in rural settings.

Summary

This integrative literature review evaluated how well the revised HNAP model was empirically supported and found that the revised model is well supported and may serve as an ideal framework for comparison studies examining health behaviors across participant demographic variables. Responses to health needs in rural men and younger individuals were also identified to support the revised HNAP model in these populations. Rural men's health need differ from women's in that men seek additional resources if they perceive no loss of control in the helping process. Overall, however, both males and females use a concurrent circular process in meeting their rural health needs. Ego and self-esteem were deemed a barrier to seeking mental health resources, as opposed to women who were not reluctant to do so.

Barriers were found that prevent rural dwellers from health promotion, prevention, and treatment options including cultural, physical, and psychological impediments that may interfere with the revised HNAP foundation. Additional rural barriers were noted as lack of rural providers, deteriorating health conditions, financial strain for services, increasing co-morbidities, and perceived quality of the care received. Insight and support regarding cultural practices, beliefs, and decision making processes in rural dwellers for overall health promotion, illness prevention, and treatment using a holistic interpretation was addressed and support in these areas was obtained and verified.

This integrative literature review found overall support both domestically and internationally for the HNAP model. No additional changes were added to the current HNAP model but future research is recommended.

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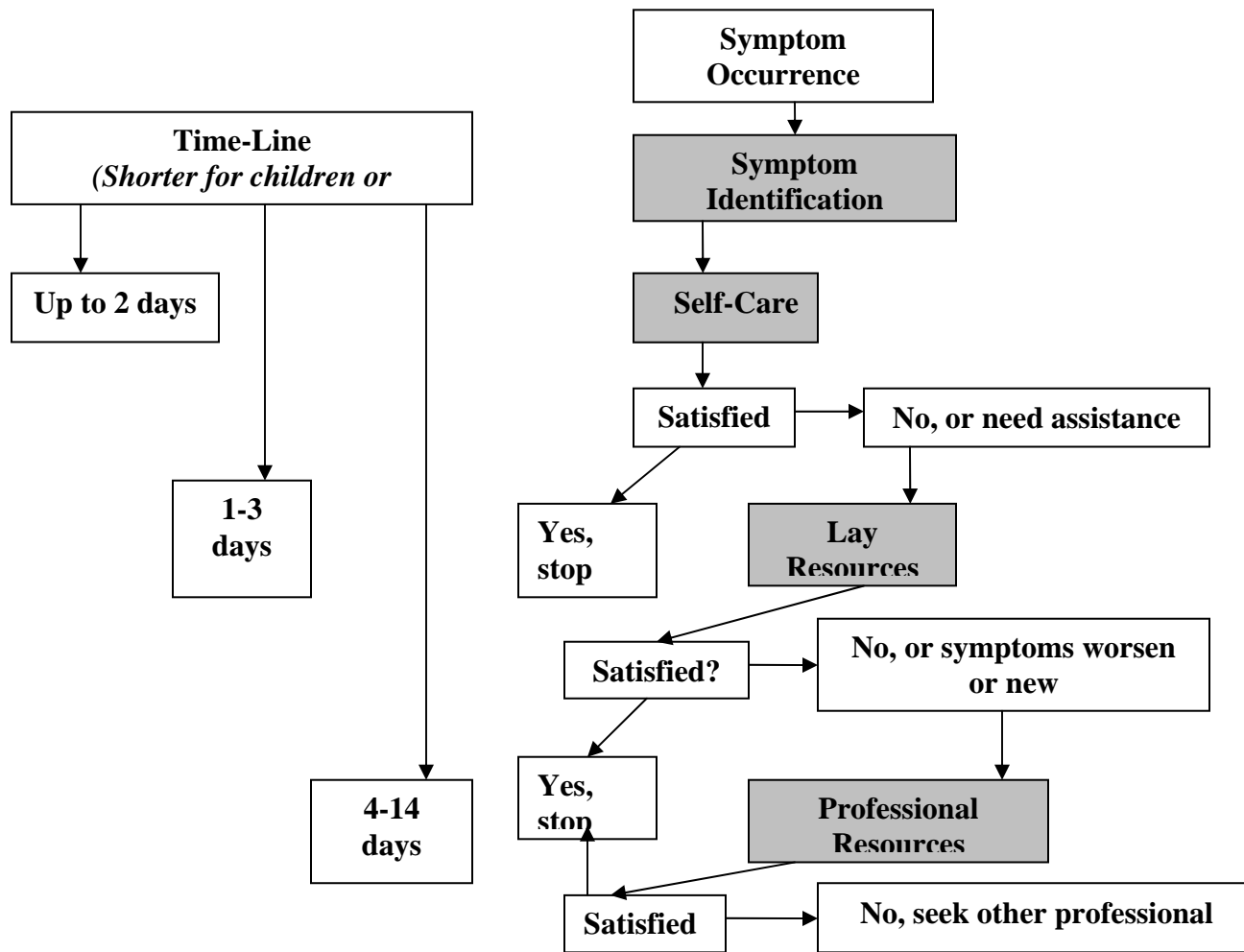
APPENDICES

APPENDIX A

THE SYMPTOM-ACTION-TIME-LINE (SATL) PROCESS

SYMPTOM-ACTION-TIME-LINE PROCESS (Adapted from Buehler, Malone, & Majerus, 1998)

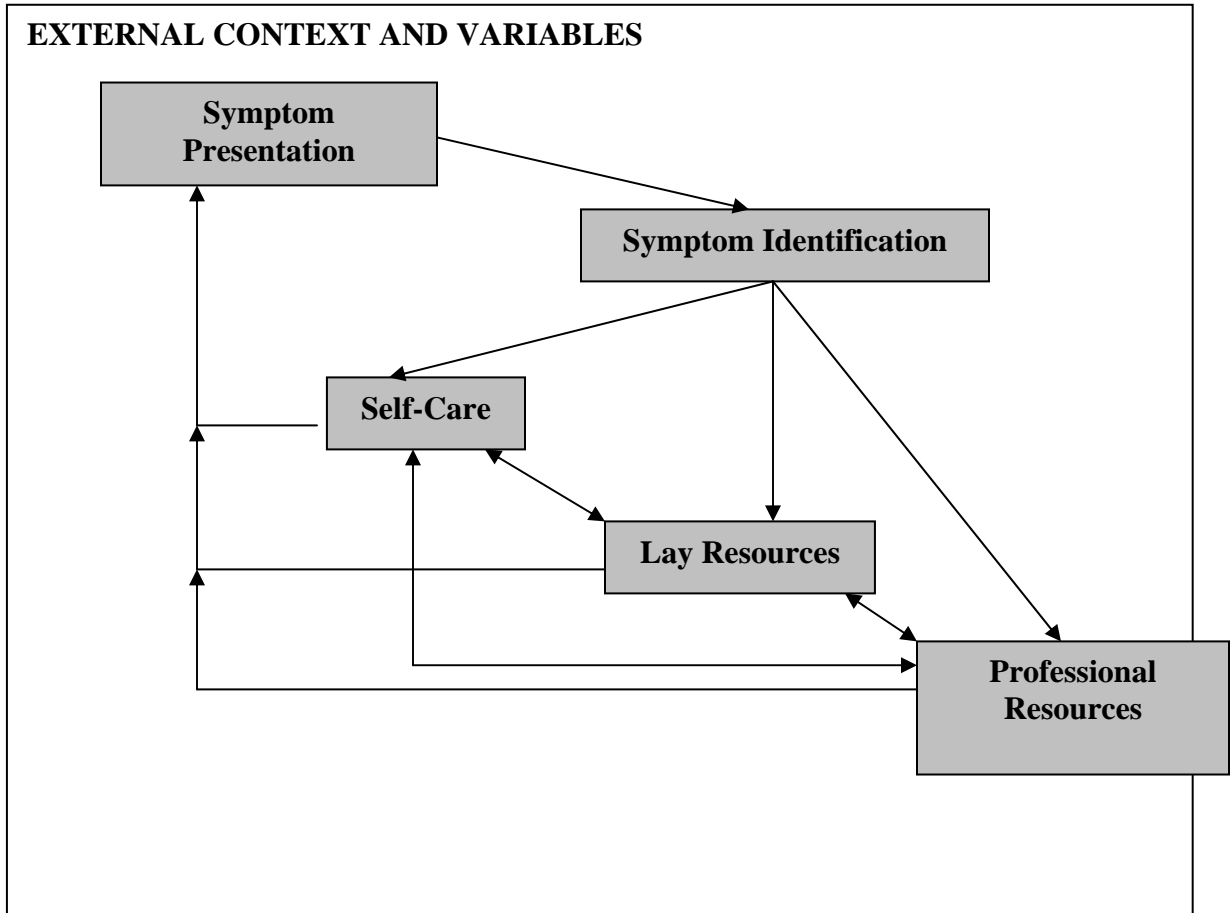
(SATL Model)



APPENDIX B

SYMPTOM-ACTION PROCESS (SAP): A REVISION OF THE SATL PROCESS

Symptom-Action Process (SAP): A Revision of the SATL Process
(Adapted from O'Lynn, 2010)



SYMPTOM-ACTION PROCESS

(SAP Model)

APPENDIX C

HEALTH-NEEDS-ACTION-PROCESS (HNAP) MODEL

HEALTH-NEEDS-ACTION-PROCESS (HNAP Model) (Rasmussen, O'Lynn, and Winters, 2012)

