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Venous leg ulcer treatment.

Why won't the patient comply?

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Supervisor's Signature .....

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Table of Contents

	Page Number
Title	1
Student Declaration	2
Acknowledgements	3
Table of Contents	4
List of Appendices	4
Abstract	5
1. Introduction	6
2. Conceptual Framework	8
3. Literature Review	13
3.1 Introduction	13
3.2 Compliance as an ideology	13
3.3 Primary Health Care and self-care	15
3.4 Compression therapy and compliance	16
3.5 Exercise, leg elevation and compliance	19
3.6 Nutrition and compliance	20
3.7 Variables influencing compliance	21
3.7.1 Education and knowledge	21
3.7.2 Illness	23
3.7.3 Social/family support	24
3.7.4 Health beliefs, attitudes and control	25
3.6.5 Patient/practitioner relationships	26
3.8 Partnership. An alternative concept	27
4. Summary, Conclusions and Recommendations	29
4.1 Summary	29
4.1.1 Knowledge	30
4.1.2 Perceived control of health and perception of health status	31
4.1.3 Modifying factors	33
4.1.4 Perceived benefits/barriers	34
4.1.5 Socio-psychological variables	36
4.1.6 Perceived susceptibility to and seriousness of disease	37
4.2 Conclusions	38
4.3 Recommendations	41
5. References	44

List of Appendices

Appendix I	Theoretical Model	51

Abstract

Community nurses spend much of their time in the treatment and prevention of recurrence of venous leg ulcers. Failure by patients to follow treatment regimes that include compression therapy, diet, exercise and leg elevation is the source of much frustration for community nurses who are quick to label these patients as "non-compliant". Why is it that some patients will adopt health behaviours that are beneficial for the healing of venous leg ulcers and other patients will not? What can community nurses do to encourage participation in the above, self-care activities? A complex relationship between multiple factors that influence patients' decisions to adopt beneficial health behaviours exists. By encouraging the patient to identify personal influencing factors, a plan of care can be created together between the patient and the nurse. The required shift in attitude of the CN to form this "partnership" may contribute to less labeling of patients as non-compliant.

1. Introduction

Community nurses (CN) spend much of their time in the treatment and prevention of recurrence of venous leg ulcers (VLU) (Moffatt, Franks, Oldroyd, Bosanquet, Brown Greenhalgh & McCollum, 1992, p.1389; Thorley, Garrad, Strahand & Wealands, 1997). Failure by patients to follow treatment regimes that include compression therapy, diet, exercise and leg elevation is the source of much frustration for community nurses who are quick to label these people as "non-compliant. Compliance rates for chronically ill patients are reported to be approximately 50% (Cameron & Gregor, 1987, p.671).

Research continues to dictate that compression therapy is the most effective treatment for the reversal of venous hypertension, which if left untreated, leads to a breakdown in tissue viability and ultimately, ulceration (Browse & Burnland, 1982, pp.243-245; Sommerville, Brow, Byrne, Quill & Fegan, 1974, pp.979-981). Approximately 70% of VLU will heal in 12 weeks when compression therapy is correctly applied and worn (Blair, Wright, Backhouse, Riddle & McCollum, 1988, p.1161).

The fact that patients with VLU *can* actively participate in their own treatment (self-care) should be a source of great encouragement to community nurses. Why is it then that some patients will engage in activities or adopt health behaviours that are beneficial for the healing of VLU and other patients will not? What nursing interventions will assist patients with VLU to maintain or regain their health (Polit & Hungler, 1978, cited by

Flaskerud, 1984, p.153)? Do these patients labeled as "non-compliant" require more education/knowledge about their venous disease? Will an increase in education/knowledge lead these patients to adopt preventative health behaviours?

Experience and observation indicate that many patients have little knowledge and understanding of the aetiology and treatment for VLU. It is possible that this knowledge deficit may contribute to the patient's inability to comply with the prescribed treatment regimes. However this is not always the case, as is evidenced by conversations between CNs and some well-educated patients with a firm understanding of the aetiology and treatment for VLU who do not adopt health behaviours that enhance or promote wound healing. What then are the factors that influence patients' decisions not to follow treatment regimes for VLU? Perhaps the real question should read "What can community nurses do to effectively encourage patients to adopt health behaviours that enhance healing of VLU?" These questions will be addressed in the following chapters.

Chapter Two discusses the conceptual framework used as a reference to guide this research and Chapter Three provides an in-depth review of literature encompassing Primary Health Care, the concepts of self-care and partnerships, compliance levels with treatment regimes and factors influencing compliance. The discussion that follows in Chapter Four examines relevant information from the literature review within the context of the conceptual framework, from which conclusions and recommendations are made.

2. Conceptual Framework

It is anticipated that some of the questions relating to patient compliance with VLU treatments will be answered when applying the theory of health promotion (Pender, 1987). Tripp-Reimer (1984, p.196) suggests that instead of testing theories *of* nursing which "define the phenomenon of nursing", researchers test theories *for* nursing practice "which focus on testing which type of intervention works best with certain clients in specific clinical settings". It is Pender's (1987) belief that health education (as an intervention) for self–care can be positively influenced by nurses. Pender (1987, pp. 190-191) cites multiple studies that report positive relationships between education for self-care and behavioural change. Self-care remains a primary focus for both health promotion and protection (Pender, 1987, p.192).

Pender's model of "Client Education for Self-Care" (1987, p.194), is based on the original Health Promotion Model (PHPM) (Pender, 1987, pp57-58), which attempts to explain what motivates individuals to adopt health-promoting behaviours (Pender, 1987 pp.57-69). Similarly, the model of Client Education for Self-Care attempts to explain factors that affect patients' *responses* to health education (Pender, 1987, pp. 57-58, 193-194) and will be used as a reference framework in an attempt to understand "non-compliance" of patients with VLU. It is interesting to note that Pender (1987) uses the words "response to" rather than "adherence" or "compliance". This is a reflection of the premise from which her work originates, that is, health promotion from a Primary Health Care (PHC) perspective, as opposed to a medical model of health care wherein the origins of compliance and adherence lie. PHC will be discussed in more detail later on.

The purpose of the Client Education for Self-Care model is twofold and may be applied to both health promotion and health protection. (Protection and prevention are used synonymously in this paper). Firstly, it examines the direct factors (individual perceptions) and indirect modifying factors that affect responses to health education, and secondly, it monitors the potential outcomes of health education for self-care. Individual perceptions affecting response to education for health protection include: perceived susceptibility to disease, perceived seriousness of disease, perceived benefits of preventative actions and perceived barriers of preventative actions. The modifying factors (identified as exerting indirect influence through the individual perceptions) are demographic variables, socio-psychogical variables and structural variables. Factors affecting responses to education for health promotion are similar, but broader (Pender, 1987, p.194). The model is graphically presented in Appendix I. It is assumed that certain factors within the model may provide an indication to what motivates patients with VLU to respond to education for self-care. For example, poor mobility may be indicated as a "perceived barrier" to participating in exercise activities which are recommended to aid venous return in patients with VLU. Interestingly, Egger, Spark & Lawson (1990, p.160) suggest that motivation to adopt healthy behaviours may have little to do with health at all, and may be a reflection of a stage that the individual is currently at.

Some health promotion strategies are designed specifically to *promote* well being in healthy populations while others are designed specifically to *prevent* disease and illness. Palank (1991, p.816) notes that confusion is created by empirical data that does not clearly determine the difference between promotion and prevention. This is reflected in

some of the articles that test Pender's (1987) hypothesis. For example, Campbell & Kriedler's (1994, pp.437-447) research specifically examines health protecting activities of older persons, yet uses PHPM. Similarly, Neuberger, Kasal, Vogel Smith, Hassanein & DeViney (1994, pp.11-16) examined predictive factors for exercise behaviour and aerobic fitness of arthritic patients, both health protection activities, also using PHPM.

At this point, clarification of the subtle interpretation of health promotion and health protection is necessary. According to Bates & Winder, (1984, cited by Egger, Spark & Lawson, 1990, p.5) health promotion is "any combination of ... interventions designed to facilitate behavioural and environmental adaptations that will improve or protect health. Education is an example of a strategy that may be adopted in the process of health promotion (Egger et al, 1990, p.7). Pender (1987), whilst recognizing the complementary nature of health promotion and preventative health care, draws a distinction between the two. From Pender's viewpoint, health promotion is an "approach" aimed at maximizing the health potential of individuals and communities, and is not "disease specific", whereas prevention (or protection) is "avoidance" behaviour and is "disease or health problem specific" (Pender, 1987, p.5). The words prevention and protection are used interchangeably by Pender (1987, p.5) and will be similarly reflected in this paper.

Three levels of preventative health care have been identified; primary, secondary and tertiary and are classified according to the expected outcome or goal. The goal of primary prevention is "avoidance" of specific diseases whereas secondary prevention is focused on early intervention to halt disease progression. The goal of tertiary prevention is

rehabilitation (Pender, 1987, p.4-5). Thus, activities aimed at all levels of preventative or protective health care may be considered as "health promotion" by some researchers.

Health promotion and self-care, are also principles of PHC. The Declaration of Alma-Ata (World Health Organization, 1978, p.6) suggests that health is a fundamental right. A central issue in the PHC movement is the involvement of people as active participants in their own health care. A PHC approach promotes maximum community and individual self-care and participation in the decision process about their needs. The World Health Organization and the Ottawa Charter for Health Promotion (1986) espouse a social model for health which focuses on enabling and empowering people to make healthy choices and take control over factors which may influence their health.

Empowerment is a "process of helping individuals develop critical awareness of the root causes of their problems and a readiness to act on this awareness" (Gibson, 1991, 356-357). Thus health promotion is also a process on enabling people to increase control over and improve their health. It refers to patterns of choices that affect a person's health. In health promotion, the aim is to open up coping options to individuals by providing social support, therefore allowing them to be in a better position to cope and respond positively (Ottawa Charter for Health Promotion, 1986). Empowerment for self-care through education enables individuals to participate in and make informed decisions, regarding their health (Kingsley, 1994, pp. 46-49).

Self care is a concept incorporated into some nursing theories, namely Orem's Self-Care Deficit Theory (Orem, 1995, pp.166-178), PHPM and Pender's Client Education for Self-Care (Pender, 1987, pp.57-69 & 194). It is a concept whereby individuals "perform behaviours to prevent illness or maintain or enhance life, health and well-being" (Boddy & Rice, 1992, p. 166). According to Orem (1995, p.95), self-care is "...necessary for individuals to maintain life, health and well-being".

Orem's (1995) theory and Pender's (1987) models are similar in that they both address self-care issues. Of the three constructs within Orem's (1995) model, the self-care construct (as opposed to self-care deficit and nursing systems) is most closely aligned to Pender's (1987) models in that it examines self-care in the promotion and maintenance of health (Simmons, 1990, p.1163). Both models take cognizance of conditioning factors (Smith, 1994, p.19) and modifying factors (Pender, 1987, p.58) that affect patient's responses to self-care. The fundamental difference between the models is that Orem's theory describes and explains the nurse/patient relationship in both health and illness scenarios (Simmons, 1990, p.1162). On the other hand, Pender's (1987) models attempt to examine factors that are likely to influence patients' decisions to adopt health promoting or health protecting behaviours (Pender, 1987, pp.58-69 & 193-198). For this reason, Pender's model of Client Education for Self-Care (1987) is preferable to Orem's theory (1995) for reviewing the literature that reflects the many variables that impact on patient compliance.

3. Literature Review

Introduction

Non-compliance is a label given to patients who fail to carry out instructions according to professional (nurse, doctor, and health-care worker) advice (Falvo, 1994, p.2). A search of Medline and Cinahl data bases from1982 to 1999 revealed over a thousand articles relating to "compliance", suggesting that this topic is an important issue for many health care workers, particularly nurses and doctors. This is supported by Playle & Keely (1998, p.305) whose literature search (Index Medicus 1987-1997) revealed over 4000 articles, many of which focus on medication compliance. However, there appears to be comparatively little research related directly to compliance with treatment and prevention of recurrence of venous leg ulcers (VLU) (Peters, 1988, p.4). This literature review highlights the concept of "compliance" and gives a brief overview of the principles of Primary Health Care (PHC) and the concept of Self-Care. Levels of compliance with the various treatment regimes are examined, as are factors that influence patients' ability to comply. Last, but probably most importantly, the concept of "partnership" is reviewed.

Compliance as an ideology

The medical model of health care with which practitioners and clinicians are all so familiar appears to support the ethic of compliance whereby the professional expects the patient to "act in accordance" with given advice (The Oxford Illustrated Dictionary, 1981, p.174). Such is the case of community nurses (CN), frustrated when patients fail to comply with treatment plans for venous leg ulceration. There is good reason for this

frustration. Non-compliance imposes financial burdens on the health care system and threatens beneficial health outcomes for the patient (Playle & Keeley, 1998, p.304; MacLean & Lo, 1998, p.33; Cameron, 1996, p.244).

The general consensus of researchers after multiple reviews is that a high percentage of patients are non-compliant with treatment recommendations (Falvo, 1994, p.16). The word non-compliance conjures up negative connotations in one's mind, whereby the patient is seen to be at fault or deviant and required to take the blame for ineffective treatment outcomes. Ward-Collins (1998, p.28) suggests that the word is disrespectful to patients, is "highly subjective" and is not compatible with the nursing model that allows patients to participate in their own care.

Some researchers have preferred to use the term "adherence", suggesting that it carries slightly less judgmental tones than does the word compliance. (Playle et al 1998, p. 306; Coates & Boore, 1998, pp.528-529). Barofsky, 1978 (cited by Cameron, 1996, p.245) however, views adherence as a second point in a continuum of social control, preceded by compliance and succeeded by therapeutic alliance. "Mutual contracting" is proffered by Steckel, 1982 (cited by Tonge, 1995, p.84) as an alternative term and Coates & Boore (1998, p.529) suggest "self-management" to be more appropriate in the management of diabetes. Playle et al (1988, p.307-308) refute the semantics, stating that whatever terminology is substituted for the word compliance, it is a mere disguise of the expectations and beliefs of professional health-carers. Paternalistic overtones continue to dominate the attitudes and writing of many researchers (Butler, Rollnick & Stott, 1996, p.

1357; Playle et al, 1998, p.307; Gallagher, 1998, p38). Gallagher (1998, p.22-24) highlights two types of paternalism; misleading patients and withholding certain information to gain compliance, both of which may be open to ethical scrutiny.

Playle et al (1998, pp.306-310) further contend that compliance is an ideology supported by the "maintenance of professional power and control" over the passive patient and argue for a re-thinking of both the professional and patient roles. Patients need to be encouraged to become "active participants rather than passive recipients of their health care".

Primary Health Care and self-care

A re-thinking of professional and patient roles is in line with the principles of PHC which state that people have a "right and a duty to participate in planning and implementation of their health care" (World Health Organization, 1978, p.6).

Boddy (1992, p.166) defines self-care as "behaviour performed by individuals to prevent illness, or to maintain or enhance life, health and well-being". Historically, self-care was the only means of health care. Gradually, over the years, people relinquished their responsibility for self-care to the medical profession (Boddy, 1992, p.22). It now appears that that there is a renewed interest in the area of self-care (Boddy, 1992, p.176; Bohny, 1997, p.282). This is hardly surprising considering the limited health resources of most countries. Self-care thus embraces the principles of PHC as described above.

Anecdotal evidence suggests that despite the PHC focus in community settings, CNs continue to expect compliance from the patient when planning care for VLU. The plan of care involves treating the underlying aetiology (venous hypertension) with compression and addressing the factors that promote wound healing (exercise, leg elevation and nutrition). Literature addressing each of these treatment modalities will be reviewed in relation to compliance.

Compression Therapy and Compliance

Sustained, graduated compression therapy delivering 40mm/Hg (mercury) pressure at the ankle is the "gold standard" treatment for the healing of VLU by the reversal of venous hypertension. The treatment is based on empirical studies and is used by expert practitioners across the globe in the treatment of venous leg ulcers resulting from venous hypertension (Nelson, 1998, pp.148-150). The wide acceptance of this treatment is such that it is taken as general knowledge and is frequently not referenced in journal articles.

Compression may be obtained by either bandaging or wearing of hosiery. Compression hosiery or stockings are frequently recommended for the prevention of recurrence of VLU after healing, using the same principle, that compression is known to improve venous haemodynamics by narrowing the veins (Partsh, 1994, pp.88-91; Sommerville, Brow, Byrne, Quill & Fegan, 1974, pp.979-981). Blair, Wright, Backhouse, Riddle & McCollum (1988, p.1161) report "good" compliance of patients (111 of 126) wearing compression hosiery regularly at one year after commencement of their study, however

they fail to mention the parameters for "regular". Franzek, Schalch, Jager, Schneider Grimm & Bollinger (1996, p.75) report 54% patient compliance of "regular" (day time wear for 5 out of 7 days a week) use of compression hosiery 12 years after diagnosis of multi-level thrombosis, whereas only 23% of patients with calf vein thrombosis reported regular use. Approximately 33% of patients in an Edinburgh prevention study were unable to comply with long term use of compression hosiery, however this finding is not substantiated by rigorous testing (Ruckly 1992, p. 26).

Peters (1998, pp.6-8) cites findings of compliance rates in three studies on compression therapy: 79% (Mayberry, Moneta, Taylor & Porter, 1991), 83% (Dinn & Henry, 1992) and 84% (Moffatt and Franks, 1995). Only Moffatt and Franks (1995) measured compliance levels by means of a questionnaire, however self-reporting is known to have limited validity (Lobiondo-Wood & Haber, 1990, p.236). Peters states that a signed agreement to wear compression hosiery for 5 years may have affected the internal validity of Dinn & Henry's (1992) study. The participants in Mayberry et al (1991) study were assumed as compliant unless consistent refusal to wear compression hosiery was noted. It is possible that all these variables accounted for a seemingly high percentage of compliance by patients instructed to wear compression hosiery.

Kiev (1990, cited by Peters, 1998, p.5), notes that compliance by men was almost double that of women. Given that the gender ratio for VLU is at least twice as many women as men, this raises serious concerns regarding compliance by women (Hyde, Bagia & McMullin, 1996, p.4; Callam et al, 1985, p.1856).

Recurrence rates for venous ulceration is significant, ranging from 20% (Moffatt et al 1992, p.1392), to as high as 69% (Monk & Sarkany, 1982, cited by Moffat et al, 1995, p.57). Although little is known about the factors relating to recurrence, compression continues to be the favoured preventative treatment (Moffatt & Dorman, 1995, p.57). These findings suggest that patients need to adopt health behaviours that focus not only on healing outcomes, but also on the prevention of recurrence of VLU.

Pender's Health Promotion Model (PHPM) attempts to explain the likelihood of individuals adopting health-promoting behaviours. Similarly, Pender's model of Client Education for Self-Care examines the influence of individual perceptions and modifying factors in response to education for self-care for health protection (Pender, 1987, p.194). The latter model may provide a suitable framework for an evaluation of compliance of patients living at home and receiving treatment for VLU from CNs. It examines both cognitive- perceptual factors, modifying factors and cues to action (Pender, 1987, p.60).

VLU are also called chronic leg ulcers due to the nature of traditionally prolonged healing times and high recurrence rates (Blair et al, 1988, p.1160; Franks, Moffatt, Connolly, Bosanquet, Oldroyd, Greenhalgh & McCollum, 1994, p.84). Ulcer duration as long as ten years in 30% of patients has been reported (Moffatt, 1995, p.57). In this context, venous leg ulcers may be perceived as a chronic disease, whereby patients live with ulcers for many years without cure. Reviewed literature by Cameron & Gregor (1987, p.671) indicates compliance at approximately 50% in people with a chronic illness, however no details of the studies are given to validate this finding. Most of the

reviewed literature is related to patients receiving treatment in community clinics, however the study by Moffatt et al (1992, pp.1389-1392) did include a small percentage of patients that were treated in their own homes. The slower healing rate of these patients was attributed to poor mobility rather than poor compliance. It is expected that results obtained from studies of patients in their own homes will differ from those in a somewhat controlled (supervised) environment such as community wound clinics (Tonge, 1995, p.85). This is confirmed by Moffatt et al (1995, p.1389-1392).

Exercise, leg elevation and compliance

Patients are encouraged to take regular walks and/or perform calf and ankle exercises and elevate the affected leg above the level of the heart when sitting, as adjunctive therapy to compression. The pump action of the calf muscle aids venous return to the heart by squeezing the deep veins. Exercise such as walking, which involves contraction of the calf muscle, is recommended as adjunctive therapy to aid venous return (Herbert, 1997, p.122).

Reduced mobility due to chronic illness, such as arthritis, precludes a number of patients from the therapeutic benefits of walking. Foot and ankle exercises, whilst seated, are alternative methods of initiating the calf muscle pump action (Herbert, 1997, p.107 & 122; Hubner, 1990, cited by Wissing, Unosson, Lenneräs & Ek, 1997, p.577). Leg elevation of 50cm for 3 hours demonstrates an increase in transcutaneous oxygen pressure (TcPO2) by relieving venous pressure and improving venous haemodynamics

(Bourne, 1992 and Creutzig, Caspary & Alexander, 1988, cited by Johnson, 1995, p.396). Hence, patients are also advised to elevate their legs, ideally above the level of the heart, when sitting. Many patients are unable to adopt this position due to illness limitations. 80% of community-living elderly people with lower leg ulcers (venous and arterial) do not elevate their limbs and 60% walk for one hour or less per day (Johnson, 1995, p.399). A descriptive study to identify women's exercise patterns and adherence to maintenance programmes following acute cardiac events reveal women exercise well below therapeutic recommendations (Moore, Ruland, Pashkow & Blackburn, 1998, p. 318).

Nutrition and compliance

A complete diet that contains proteins, fats, carbohydrates, vitamins and minerals provides an optimum environment for wound repair, however, the relationship between healing of VLU and nutrition is not well documented (Wipke-Tevis & Stotts, 1996, p.27; Green & McLaren, 1998, p.31). A small sample of nine leg ulcer participants in Sweden was found to have nutritional intakes below the Swedish Nutrition Recommendations. Five of these people were also deficient in protein, Vitamin C and zinc (Wissing et al, 1997, p.573). Wipke-Tevis et al (1996, p.30) report protein, calorie and zinc intake less than recommended dietary allowance (RDA) in more than 50% of patients with leg ulcers. Limitations of this study are the small convenience sample and blood sampling methodology. The therapeutic effects of zinc supplementation remains controversial (Thomas, 1996, p.44; Green et al, 1998, p.30). A nutritional risk assessment tool to determine nutritional deficits is useful. Nurses need to be mindful of compounding

factors such as financial restrictions, physical limitations to shopping and cooking and eating alone which may contribute to poor nutritional intake, before labeling patients as non-compliant to nutritional information and education (Wipke-Tevis et al, 1996, p.29).

Variables influencing compliance

Current literature indicates recognition of variables that influence patients' ability to comply with treatment regimes. Such factors include both social and psychological influences, for example, education and knowledge, illness type and treatment, social/family support structures, health beliefs and attitudes and the patient/practitioner relationship (Cameron, 1996, pp.245-248). Similarly, Falvo (1994, p.22) attributes "non-compliance" to three factors, namely, the patient, the disease or treatment and the health professional. Pender (1987, p.60) recognises both cognitive-perceptual factors and modifying factors as influencing individuals to engage in self-care activities.

Education and Knowledge as a variable

Traditionally, patients receive health information (knowledge) from health professionals, including nurses, as part of everyday care. Unfortunately, this sharing of information does not necessarily lead to patients following instructions or treatments. Recognition of the cost of so called "non-compliance", in both financial terms and loss of human life, are just two reasons for the evolution of patient education programmes. Education that includes the patient as an active participant and takes into consideration various factors

that impinge on patients' health care needs is paramount. The outcome of effective, patient education is a "change in behaviour, skill or attitude" (Falvo, 1994, pp.1-7).

Nudds (1985, p 14) claimed improved VLU healing rates in an intervention group of 12 patients that received education regarding aetiology of VLU and the need for compression therapy. This study was poorly designed, had a small sample with a drop out rate of 25% and did not adjust for the variation of different bandage types. Dale and Gibson (1992, p.755) infer that improved patient knowledge regarding the mechanics of compression is likely to improve compliance, however no study was conducted to substantiate this claim. Evidence regarding the relationship between knowledge and compliance continues to be in conflict. Studies by Haynes (1976 & 1979, cited by Cameron, 1996, p.245; Cameron & Gregor, 1987, p.675) report no consistent correlation.

Knowledge and knowledge deficit has been demonstrated to be predictive of both success and failure respectively, in the self-management of diabetes (McLean, & Lo, 1998, p.39). Pender argues that within the context of PHC, knowledge is the vital ingredient in the promotion of self-care (Pender, 1987, pp.185-186). Knowledge without rationale (the "how to" without the reason "why") serves little purpose, hence any educational intervention requires some explanation if the patients' understanding is to be enhanced (Cameron & Gregor, 1987, p.675; Coates & Boore, 1998, p.534).

The literature thus indicates that to assume compliance or altered health behaviour simply because knowledge has been imparted is futile (Haynes et al, 1979 & Hogue, 1979, cited

by Cameron et al, 1987, p.675). Brennan's (1996, pp.1061-1062) quote is most succinct. "The presumption of a linear orderly interconnection between knowledge and skills, which has guided diabetes education approaches, underestimates the complexity of human behaviour". The conclusion then, is that knowledge alone is insufficient motivation for patients to engage in health protecting behaviours.

Illness as a variable

The type and severity of an illness and the prescribed treatment may have an influencing effect on patients' ability to comply with treatment. A negative correlation between medication compliance and complexity and duration of treatment regime is reported (Haynes, 1996, cited by Cameron, 1996, p.248). According to Potter & Perry (1993, p.53), "Illness is not synonymous with disease". This is evidenced by the different perceptions of illness different people have. For example, a patient responding well to chemotherapy and not exhibiting any side-effects of the drugs, might not perceive themselves as being ill, while another patient undergoing surgery for any reason, might perceive themselves as being unwell (Falvo, 1994, p.48). Depending on the perception, the patient may then behave in a certain way, exhibiting various behaviours of the "sick role"(Parsons, 1951, cited by Falvo, 1994, p. 86).

The chronic nature of some illnesses may also play a part in compliance. Where there is little hope of cure, and only temporary relief from symptoms, motivation to follow regimes may wane (Potter & Parry, 1993, pp.52-53). A patient with limited mobility and hand dexterity as a result of rheumatoid arthritis will have extreme difficulty applying

compression hosiery, exercising an often fixed ankle joint and elevating the legs above the level of the heart. In these circumstances, the patient can hardly be labeled as non-compliant. Indeed, these patients are in need of much support, either from within the family or from the available social support structures. Personality type may also affect the way a patient perceives an illness or the seriousness thereof. Symptoms of illness that are interpreted as serious might motivate one patient to seek medical advice and another patient to deny the symptoms altogether (Falvo, 1994, p.83).

Social/family support as a variable

Social support is suggested to be relevant to patients with leg ulcers (Wise, 1986, p.47; Kaplan & Toshima, 1990; cited by Johnson, 1995, 396). The study conducted by Wise does not claim validity. The sample was small (10) and the researcher knew all the participants. Wise concludes a relationship between non-healing ulcers and social isolation, however compliance was not an outcome measure. Johnson's (1995, p.399) findings indicate that social support was not a determinant of healing outcomes for leg ulcers and similarly, the findings cannot be transferred to compliance. Social support may enhance adherence of diabetic self-management by provision of resources for coping mechanisms (MacLean & Lo, 1998, p.38). Multiple studies cited by Cameron (1996, p.246) suggest that family support is strongly correlated with compliance but cautions that the family can also have a negative influence on patient compliance. Falvo (1994, pp.106-109) highlights the often, complex needs of family members as bearing influence on patient compliance and recommends that education for self-care involves insight into the individual family structure.

Health beliefs, attitudes and control as a variable

Cameron's conclusion that health beliefs and attitudes as variables influencing compliance is based on reviews of studies that examine this within the framework of the Health Belief Model (HBM) (Cameron, 1996, p.247). Henderson however, points out the shortcomings of this model, which assumes that "perceived severity and vulnerability" to illness is the motivation for patients to adopt preventative health behaviours. The HBM does not allow for personal and cultural values and other demographic variables. This might explain why health promotion strategies in Australia have such poor compliance rates (25%) (Henderson, 1994, pp.209-220). Perception of locus of control or attitude towards illness or health may determine a patient's compliance. Patients whose belief hinges on an external locus of control perceive no personal control over health events and may make no attempt to make behaviour changes. Conversely, those with an internal locus of control assume some responsibility for health outcomes by adopting changed health behaviours (Wilkinson, 1995, p.935). Beitz makes mention of a traumatic paraplegic (penetrating trauma) patient that rejected self-care by doing little to prevent recurrence of pressure ulcers. Anger and deep psychological needs are reported as having significant impact on the patient's rejection of self-care (Beitz, 1998, p.73S). Recurrence rates of pressure ulcers are reported as high as 79% for this group of patients (Disa, Carlton, & Goldberg, 19922, cited by Beitz, 1998, p.73S).

Powerlessness, defined by overwhelming dependence and perceived by either the individual or by society, is proposed as a variable that influences patients' choices of

health behaviours. Individuals trapped in this belief system are unable to initiate change or become independent. Society trapped in this belief system does not expect independence from such people and the cycle of dominance and paternalism continues (Gallagher, 1996, pp.35-38).

Conversations between CNs and patients reveal a number of patients who believed that VLU was inevitable (given their family history), and were prepared to "go to the grave" with their ulcer. These patients believed that they were powerless and had no control over the ulcer and therefore healing was not an expectation. Another more eccentric patient did not acknowledge the large ankle wounds at all, preferring to believe it was a minor infection. This patient's perception of the seriousness of the ulcer was somewhat limited. Needless to say, convincing this patient of the therapeutic benefits of compression therapy was fruitless! Anecdotes such as these are supported in the literature (Tonge, 1995, p.85).

Patient/Practitioner relationship

Recognition of the changing relationship between nurse and patient is well documented (Porter, 1994, p.269; Wilkinson, 1994b, p.1046; Playle et al, 1998, p.310; Cameron, 1996, p.248). Patients no longer expect to be treated as mere recipients of care without any input into decision making. Similarly, nurses are embracing this changing relationship through improved communication with patients (Porter, 1994, pp.272-273). Various authors (DiMateo & DiNicola, 1982, cited by Tonge, 1995, p.85; Ley, 1988, cited by Cameron, 1996, p.246) support the importance of a positive patient/practitioner

relationship. Negative experiences between patients and health professionals are quoted as impacting on compliance (Feuerstein, Lieb-Juckstock, Schnaus, Springmann, Weber, & Wunderlich, 1988, cited by Lannon, 1997, p.174).

It is suggested that the level of non-compliance is inversely related to supervision (Haynes et al 1976 and Hare & Wilcox 1967, cited by Cameron 196, p.246). This emphasizes the importance of the relationship between the patient at home and the CN. The evolving patient/practitioner relationship may be more aptly described as a concept of "partnership".

Partnership. An alternative concept.

Partnership through equality between practitioner and patient is a move away from the medical model of health care towards a greater understanding of the multidimensional influences on lifestyle and behaviour changes that patients choose to make. The philosophy of "equality" allows for recognition of these factors and acceptance of the patient's decision even when it is in conflict with the professional's advice (Moffatt & Dorman, 1995, p.60). A study conducted by Franks (1995, cited by Buchmann, 1997, pp.134-135) endorses the partnership concept, by examining the positive relationship between self-efficacy and power (referent and expert) and improved compliance.

Butler, Rollnick & Stott's, (1996, pp.1357-1362) discussion is most enlightening. The belief that advice giving is sufficient to motivate patients to change their behaviour is inaccurate. This type of approach has been found to provoke patients to "assert control by

continuing their unhealthy behaviour with renewed vigour". In a complete turn around from assessing compliance related to patient oriented factors, these authors review the clinician's consulting role as having an impact on the patient's health behaviours. Based on reviewed literature (pertaining mostly to professionals working with people with addictions), they propose that "motivational interviewing" in a patient-centered model is a more appropriate method for the clinician to interact with the patient. In this model both the patient and the professional are considered experts who meet together to negotiate a plan of care. Their approach is closely aligned with the LEARN (Listen, Explain, Acknowledge, Recommend, Negotiate) model adopted by Gallagher (1997, p.38) as a means of planning care according to patients' needs as opposed to imposing professional opinion.

It appears from the literature review that much research continues to evaluate patient compliance from the practitioner's perspective. Patients whose behaviour does not coincide with professional advice are labeled as "non-compliant". Whilst knowledge is recognised as being vital for self-care, it is clearly demonstrated that knowledge alone is insufficient motivation for patients to engage in health promoting behaviours. There is a multitude of other factors that influence patients in their responses to education for self-care. These factors plus the alternative concept of partnership are discussed and analysed in the following chapter.

4. Summary, Conclusions and Recommendations

Summary

The focus of this paper was to gain insight into the reasons why patients with VLU, receiving care in their homes from community nurses, are not always compliant with recommended treatment. Identifying these variables offers opportunities for CN to enhance positive patient responses to recommended treatment.

Before a patient can be labeled as non-compliant with the treatment regime for VLU, it is imperative that the patient knows what the actual treatment is. The primary treatment for VLU is graduated compression therapy that delivers 40mm/Hg (mercury) at the ankle, which reverses venous hypertension by improving venous haemodynamics (Nelson, 1998, pp.148-150; Partsh, 1994, pp.88-91; Sommerville et al, 1974, p.979-981). Adjunctive therapies include exercise, leg elevation and good nutritional intake. Any exercise that involves the action of the calf muscle pump to aid venous return is recommended (Herbert, 1997, p.122). Leg elevation has been demonstrated to reduce venous hypertension and oedema (Bourne, 1992, Creutzig et al, 1988, cited by Johnson, 1995, p.399) and nutritional intake within recommended daily allowances is indicated. (Wipke-Tevis et al, 1996, p.30).

Health education is considered to be an integral part of any nursing care (Falvo, 1994, p.1). It is thus assumed that during a home visit to a patient with a VLU, the community nurse explains the above treatment regime and how the patient can participate in self-

care. The logical conclusion of the CN, having imparted this knowledge, is an expectation that the patient will "comply" with the said treatment regime. When this does not happen, the nurse becomes frustrated with the apparent failure of the efforts made to educate the patient. It is at this very juncture that an examination of the association between knowledge and compliance and reassessment of factors affecting the patient's *responses* to education for self-care must be made.

Knowledge

Knowledge is a prerequisite for any self-care activity. Lockington, 1988, (cited by Coates & Boore, 1998, 529) demonstrates an association between lack of knowledge and poor diabetic control. From the literature review it is evident that education or knowledge is a vital ingredient in any health promotion activity (Pender, 1987, p.185-186). Some literature reviews report improved compliance with improved knowledge (Nudds, 1985, p.14; Dale & Gibson, 192, p.755; Falvo, 1994, p.25) whilst other studies report no consistent correlation between knowledge and compliance (Cameron & Gregor, 1987, p675; Coates & Boore, 1998, p.534). What is clear however, is that knowledge alone is insufficient to motivate patients to engage in preventative health behaviours and will not necessarily lead to compliance (Cameron, 1987, p.675; Falvo, 1994, p.2). Personal interviews between the author and some non-compliant patients with a high educational level and a good knowledge of the rationale for treatment of VLU clearly demonstrate that knowledge does not necessarily result in self-care activities to promote wound healing. Pender (1987) proposes that individuals engage in health promoting activities

when they perceive their own health status positively (pp.61 & 64). This may explain the above, observed phenomenon and will be further explored.

Perceived control of health and perception of health status.

Locus of control defines the individual's perception of "personal control over the environment" (Shillitoe, 1988, p.183). Some patients perceive their health status to be out of their own control or externally controlled whilst others assume responsibility for their own health status, claiming an internal locus of control. Internal locus of control has been associated with positive responses to health promotion and compliance with medical regimes (Murray & Zenter, 1989, cited by Lannon 1997, p.171). Some authors suggest that providing reasons and benefits of medication compliance might shift the locus of control more internally for epileptics (Lannon 1997, p.171). Conversely, Campbell & Kreidler's (1994, p.444) study revealed that all of the aged participants (n = 33) perceived an external locus of control in relation to their health status (the doctor was considered to be in control of each client's health), yet this did not prevent the clients from participating in a health education programme.

Further to this, the study revealed that the clients perceived their health status quite differently from the community nurses. The nurses' perception of wellness was independent client functioning, whereas the clients perceived wellness when they were mobile and free from pain. This perception however, did not deter participation in a wellness program nor did the participation alter their perception of their wellness. (Campbell & Kreidler, 1994, p444). Limitations to this study were identified, however

the findings do not support Pender's (1987) assumption that "individuals who engage in health promotion activities perceive their own health status positively"(p.64). The authors stress the importance of acceptance of the client's perception of their health status in order to plan for care that meets their needs (Campbell & Kreidler, 1994, p444).

It could be argued therefore, that patients with VLU also perceive their health status differently from the community nurse. Where the CN sees a wound progressing through the stages of wound healing, to the patient, an open wound on the leg may be an indication of being "ill". A study on quality of life for patients with VLU reveals social isolation, social stigma, poor body image, increased financial burden and pain all contributed to how the participants perceived their health status. (Chase, Melloni & Savage, 1997, pp.73-78). On the other hand, patients (anonymous) have been encountered who almost disregard the severity of their VLU by exhibiting a positive perception of their health status, yet do not respond to any self-care education given by the CNs.

The findings of Coates & Boore (1998, p.532) indicate that neither locus of control or health beliefs influenced the outcome of diabetic management. However, they do not suggest that the influence of psychological variables should not be considered, but rather that further investigation of other chronic conditions is carried out to test the theory.

Modifying Factors

Review of literature by Falvo (1994, p. 22) indicates that demographic variables such as age, educational level, socioeconomic level, race, gender, religion, cultural background and marital status are not generally predictive of compliance of the whole patient population. Some recognition is made however, of demographic variables as a factor of non-compliance for some individuals. PHPM is criticized by Johnson, Ratner, Bottorff & Hayduk (1993, p.133 & 137) who argue against Pender's claim that modifying factors are only indirectly influential through the cognitive-perceptual factors. Their finding indicate that certain modifying factors (body mass index) has a direct influence on health promoting activities (exercise), regardless of health perception or locus of control.

Johnson (1995, p. 399) reports 89% of community living elderly people with lower leg ulcers do not elevate their limbs and 60% walk for one hour or less per day. It would be easy to label these patients as non-compliant. It is interesting to note that slower healing rates of VLU of patients treated at home as opposed to clinic-treated patients is attributed to poor mobility rather than poor compliance. The rationale behind this statement is that the patients who attend leg ulcer clinics are more mobile, while the less mobile require attention at home (Moffatt et al, 1995, p. 1389-1392). This has obvious implications for patients at home receiving treatment for VLU by the CN. CNs needs to investigate further by asking why this group of patients do not elevate their limbs or exercise their calf muscle? Patients with poor or limited mobility may be unable to participate in recommended exercises, regardless of their desire or intention to do so. Chronic diseases such as arthritis, resulting in fixed ankle joint or severe pain may automatically preclude

these patients from exercise. It thus appears that mobility as a modifying factor may have a direct effect on patient's responses to health education for self-care.

Similarly, patients on fixed budgets (old age pension) may be financially restricted from purchasing nutritious food supplies to provide an optimal healing environment. Although the relationship between wound repair and nutrition is not well documented, a balanced diet that includes nutrients from all food groups is recommended (Wipke-Tevis et al, 1996, p.27). Studies of nutritional intake of patients with VLU have been found to be below recommendations (Wissing, et al, 1997, p.573; Wipke-Tevis et al, 1996, p.30). It may be assumed that socioeconomic factors directly influence VLU patients' ability to comply with nutritional recommendations. This assumption is supported by Sierzant (1993, cited by Lannon, 1997, p.173), who states that income plays a significant role in compliance, particularly for patients confronted with the expenses of anti-epileptic drugs.

Perceived benefits/barriers

The perceived benefit, healing of a VLU, might seem like a logical motivation for patients to respond positively to education for self-care by adopting recommended activities that enhance VLU healing. From the literature already discussed above, this does not appear to happen. Any linear connection between knowing the benefits of self-care for VLU and actually carrying out these actions is a mere misconception (Brennan, 1996, pp1061-1062). Various studies reveal a positive association between health promoting behaviour and perceived benefits (Pender, 1987, p.65). It is possible that the

perceived barrier, for example, the discomfort of wearing compression, outweighs the perceived therapeutic benefits.

As discussed earlier, wearing compression bandaging or hosiery to reverse venous hypertension has been clinically demonstrated in numerous studies (Nelson, 1998, pp. 148-150; Partsh, 1994, pp. 88-91; Sommerville et al, 1974, pp.979-981). Healing of VLU in as little as twelve weeks has been demonstrated with the application of compression therapy (Moffatt, Franks, Connolly, Fielden, Ellison, Groake & McCollum, 1997). Yet reports of compliance with wearing compression hosiery vary from 84% (Peters, 1998, pp.6-8) to as little as 23% (Franzek at al, 1996, p. 1161), and recurrence rates for VLU is reported as high as 69% (Monk et al, 1982, cited by Moffatt et al, 1995, p.57). Kiev, 1990, (cited by Peters, 1998, p.5) notes that compliance by men was almost twice that of women and the ratio of VLU for women is more than twice that of men (Hyde, Bagia & McMullin, 1996, p.4). Given these statistics, CNs can anticipate a larger proportion of women patients with VLU will not be compliant with the wearing of compression therapy. Conversations with patients (anonymous) indicate that barriers to wearing compression therapy from the patients perspective include cost, heat and discomfort, skin irritation, pain, inability to fit into conventional shoes, social stigma, reduced social contacts and outings and keeping bandages dry in the shower.

Whilst wound care practitioners appreciate the cost-effective nature of compression bandaging (fewer nursing/clinic visits, fewer dressing changes) (Blair et al, 1988, p.1161), patients are likely to measure the cost in personal terms. Cost may be measured

by the impact that wearing compression therapy will have on a patient's life (Falvo, 1994, p.206). Loss of self-esteem, lost working days or social contacts may be considered as great personal cost. These perceived barriers might far outweigh the perceived benefits of compression.

Socio-psychological variables

Support from a family member or member of the health team is deemed to be relevant to patients with leg ulcers (Wise, 1986, cited by Johnson, 1995, p.3396). Similar findings are supported by Cameron (1996, p.246) and MacLean & Lo (1998, p.38). Falvo (1994, pp.106-1-9) recommends gaining insight into the family structure before offering education for self-care. A woman with a VLU might have difficulty complying with leg elevation if her partner expects her to undertake the household chores such as ironing and cooking, both of which require long periods of time spent standing. The workplace may not always provide a supportive environment for patients with VLU needing to regularly exercise the calf muscle and elevate the affected limb. Social embarrassment caused by wearing obvious bandaging may hinder an otherwise normally compliant patient from following recommended advice.

The literature review indicates that non-compliance is inversely related to supervision (Haynes et al 1976 and Hare & Wilcox 1967, cited by Cameron 196, p.246). The importance of the patient/practitioner relationship is noted by many authors (Porter, 1994, Wilkinson, 1994b, Playle et al, 1998, Cameron, 1996). Patients no longer expect to be treated as mere recipients of care without any input into decision making. Negative

experiences between patients and health professionals are quoted as impacting on compliance (Feuerstein et al, 1988, cited by Lannon, 1997, p.174). Advice giving, with an expectation of compliance, has been found to provoke some patients to continue with unhealthy behaviours in an attempt to assert some control over their own care (Butler et al, 1996, pp.1357-1362). It might be assumed therefore that patients with VLU, like any other patients, not only appreciate, but also respond well to positive, supportive interactions with the CN. This support will not automatically result in compliance, but a healthy patient/CN relationship fosters mutual respect for independent decisions.

A report of recurrence of pressure ulcers in traumatic paraplegics is high and appears to be associated with psychological factors. Beitz (1998, p.73S) identified anger and deep unmet needs as the reason for rejection of self-care for one such patient. Socio-psychological influences may also be linked to the patient's previous experience with a disease or illness. The personality type of the patient may also determine how the patient responds to health protecting activities. Some patients may be demanding, others indifferent, both reflections of that patient's particular personality type (Falvo, 1994, p.81-83).

Perceived susceptibility to and seriousness of disease.

The structural design of Pender's model is closely aligned to the earlier designed, Health Belief Model by Rosenstock, Hochbaum & Kegels (Pender, 1987, p43). Pender(1987) reviews numerous studies in the light of this model and concludes that the majority of findings support an association between a perceived increased susceptibility to disease

and engaging in health protecting behaviours. The influence of the perceived seriousness of disease as a motivating factor to engage in protective health behaviours is less clear, with positive, negative and even no associations reported (Pender, 1987, pp.43-47). None of the reviewed literature specifically identified this variable in relation to VLU. The author can only draw from personal experience in the community where some patients perceive themselves to be more susceptible to episodes of VLU given the hereditary factor, yet lack motivation to engage in health protecting behaviours. Other patients simply do not connect the symptom (VLU) with the cause (venous hypertension) and hence do not perceive the seriousness of their ulcer.

Conclusions

Knowledge is imperative for self-care activity, and it is possible that many patients will benefit from knowing more about their VLU, however, knowledge alone is insufficient to motivate patients to engage in preventative health behaviours. Hence an increase in knowledge of the aetiology and treatment for VLU will not necessarily result in compliance. Education as a nursing intervention to promote self-care must be more than an imparting of knowledge to the patient; it must be aimed at a behavioural change (Falvo, 1994, p.5).

Campbell & Kreidler, (1994, p.444) stress the importance of acceptance of the client's perception of their health status in order to plan for care that meets their needs, remembering that the needs of the patient might be quite different to what the CN perceives them to be. It appears that meeting the needs of the patient with VLU, can be

achieved when the patient and the nurse meet together as equals, both experts in their own domain. This partnership allows for a plan of care to be negotiated between the patient and the nurse (Moffatt & Dorman, 1995, p.60; Butler et al, 1996, pp.1357-1362), thus supporting the PHC concept of working in partnership with the client to meet their needs (Cooney, 1994, p.333).

It appears that modifying factors may have a direct influence on patients ability to follow recommended self-care activities for VLU, and not merely indirectly through the cognitive-perceptual factors as suggested by Pender. These findings in the literature review further indicate the need for CNs to fully investigate reasons why patients are not able to participate in recommended self-care activities to enhance VLU healing. Involving the occupational therapist or physiotherapist in the provision of suitable devices that the aid the patient's exercise routine may be all that is required. Hubner, 1990, (cited by Wissing et al, 1997, p.577) suggests a foot pump to activate the calf muscle as a suitable device for patients with limited mobility. Discussion of personal likes and dislikes of various foods, investigating economical purchasing options and limitations to food preparation are a necessary part of the nursing assessment if the CN hopes to improve dietary intake of patients with VLU.

The association between perceived benefits and health promoting behaviours highlights the need to identify what the patient perceives as a barrier to adopting activities that promote healing of VLU. In some circumstances, the patient may easily identify physical reasons for being unable to follow the recommended self-care activities but in other

circumstances, the CN may need to probe more carefully to understand the real reason behind the lack of action. The barriers may include sociopsychological or demographic variables or be related to perceptions about health and locus of control.

Before undertaking any education for self-care of VLU, CNs need to be aware of the family dynamics and structure that influence the patient's ability to comply. Imposing professional advice without first understanding the influence of the family, might prove to be futile. Creating positive patient/CN relationships whereby the patient and nurse are deemed to be partners in the planning of care is of utmost importance. This type of relationship empowers patients to take control and make decisions regarding their care within a supportive environment. Wearing black support socks (Venosan™) instead of beige compression bandaging for one businessman is an example of shared planning, negotiation and compromise (CN's observation).

The influence of perceived susceptibility and perceived seriousness of VLU as influencing patients to adopt self-care activities is unclear. Each patient needs to be assessed individually as to how their beliefs will impact on their health promoting actions.

Pender's (1987) model of Client Education for Self-Care is useful for highlighting the many variables that influence patients' responses to engaging in health protecting activities. However, in the context of VLU, it seems that the variables are very much interrelated, and cannot be so easily separated into individual perceptions and modifying

factors as intended by Pender (1987). An example of this is family support structure which might be categorized as a barrier to protective health activities by one author and as a psychosocial factor by another. Similarly, Pender (1987) proposes that the modifying factors are only indirectly influential through the individual perceptions, however, Johnson et al (1993) refute this, claiming that body mass index, as a modifying factor, has direct influence on patients' health promoting activities such as exercise.

It thus appears from the reviewed literature that it is not simply perceived benefits or barriers, or susceptibility or seriousness of disease that affect patients' responses to education for self-care of VLU. Nor is it solely demographic, socio-psychological or structural factors. Rather it is a complex relationship of all these elements that may lead to various responses from patients. Although these difficulties are encountered within Pender's (1987) somewhat tightly structured model is, it is fair to suggest that it does provide a framework for this research.

A definition of compliance from a patient's perspective speaks volumes, "...the willingness of the doctor to undertake diagnostic and therapeutic measures in cooperation with the patient" (Feuerstein et al, 1988, cited by Lannon, 1997, p.174).

Recommendations

Historically, the concepts of "compliance" and "non-compliance unfortunately *do* conjure up negative connotations whereby nurses expect patients to "do as they are told". This

attitude reflects an unequal relationship of dominance by the professional over the patient. It also suggests that nurses are not attuned to the subtleties of human behaviour, and that patients are not given opportunity to express their feeling regarding their ability to participate in their own care.

Instead of adopting this negative attitude and labeling of patients as non-compliant, CNs should take the opportunity to find out exactly why patients respond the way they do. Identifying the variables that influence patients' responses to recommended treatment is the first step in answer to the question raised at the beginning of this paper "What can CNs effectively do to enhance patient compliance with treatment for VLU?"

This shift in attitude might be successfully initiated through the development of a "partnership" with the patient. The social model of PHC appears to be a suitable method for developing the concept of partnership. The process involves both patient and CN meeting together as equals, each bringing valuable information to the discussion. The nurse brings specialist knowledge on VLU treatment and the patient brings personal knowledge of the factors most likely to influence decisions to actively participate in preventative health activities. Thus, knowledge through education is the vital first step towards empowering patients to become active participants in their own preventative health care.

The concept of "partnership" between the CN and VLU patient needs further exploration to identify the impact of this relationship on health protecting, self-care activities. A

positive relationship would indicate that CN might need to alter their own behaviour by restructuring their interactions with their patients. Treading new ground might elicit fears amongst both CNs and patients; however, the possible positive outcomes should serve as an encouragement to experiment with this relationship.

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Appendix I

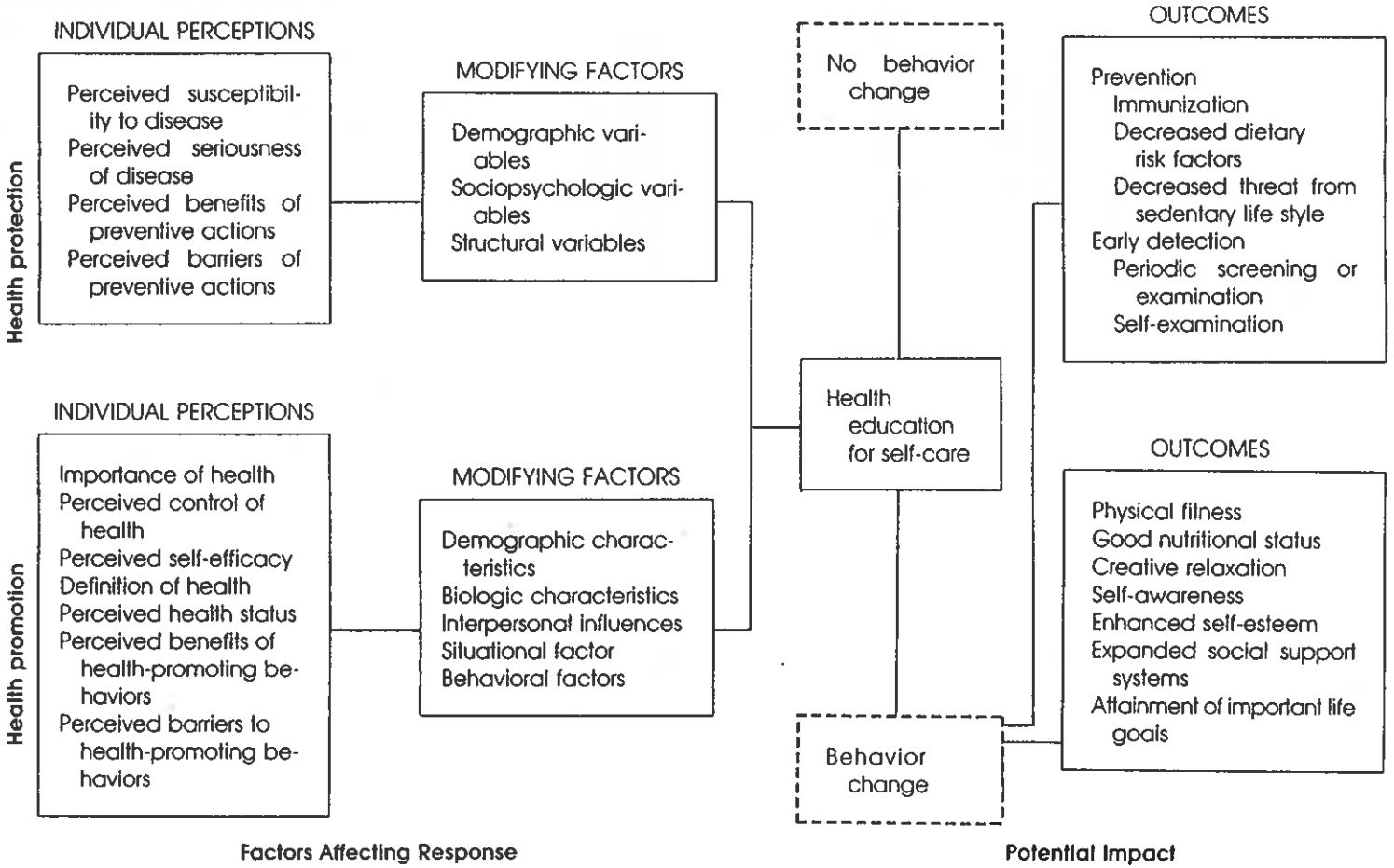


Figure 8–1. Client education for self-care.

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