

Translation, adaptation and validation process for the DINA instrument

by Gemma Aucoin-Gallant

Abstract

This article presents an adapted and validated version of the Derdiarian Information Needs Assessment (DINA) instrument. This French adaptation of the DINA instrument helps to determine the learning needs of the caregiver whose spouse is a cancer patient. The design of the original DINA instrument is explained. The accuracy of the statements comprising the adapted instrument was established by agreement by two language experts about the phrasing of each question. Using a conceptual analysis of the term “learning need” and a perceptual approach, modifications were made to the DINA instrument. Measuring attributes appropriate for this instrument are indicated. The article puts forward the validity and reliability of the French adaptation of the instrument. It concludes with stressing the usefulness of this instrument for the nursing practice.

This article presents an adapted and validated version of the Derdiarian Information Needs Assessment (DINA) instrument which aims at identifying the learning needs of caregivers whose spouses are cancer patients. The French-language adaptation is applicable to both clinical practice and research. In the practical setting, the nurse must know the caregivers' learning needs in order to plan and provide quality of care. She helps the individuals progress in their path by recognizing their actual learning needs and helping them learn in a caring environment. In the research setting, the identification of learning needs allows for the implementation of an education intervention program for caregivers whose spouses are living with cancer.

The article first presents the design of the original DINA instrument. Using a conceptual analysis of the term “learning need” and a perceptual approach, modifications were made to the DINA instrument. The goal of the new instrument remains the same, i.e. identifying learning needs. Measurement attributes associated with this instrument are indicated. Lastly, it stresses its usefulness for nursing practice.

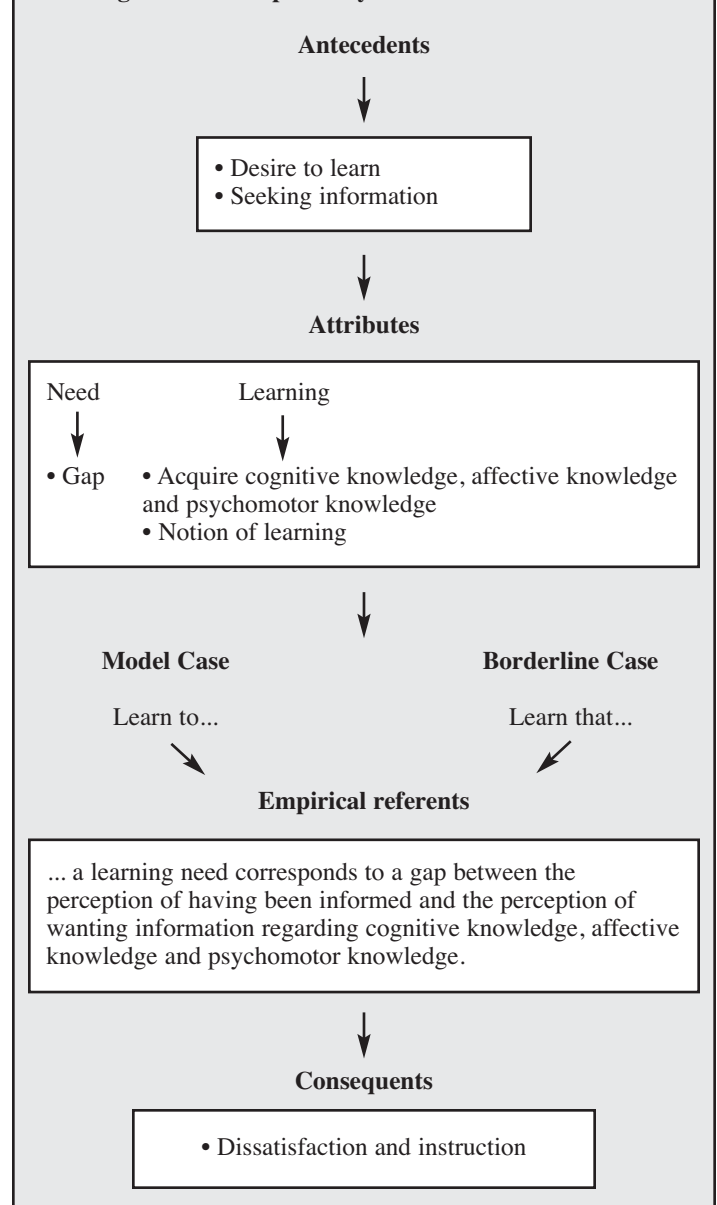
Design of the DINA instrument

The original English-language DINA instrument was developed in 1983 by Aeneas Derdiarian. It allows cancer patients to express their learning needs. Then this instrument was adapted to be used by families with a member living with cancer. Derdiarian based the development of her measurement instrument on a frame of reference structured around coping concepts, cognitive assessment, information seeking and personal needs. In her writing, Derdiarian (1987) suggests that the cognitive assessment of an event allows individuals to first determine the relevance of the situation. Then these individuals assess the importance of getting information or not. After that, they may experience a lack of information

and a need to learn. When the individuals select coping strategies, they tend to seek out information in order to satisfy their learning needs. Then they can re-evaluate the situation. Derdiarian (1987) observes that the information received by individuals helps them to cope better with an existential problem and regulate their emotions.

By using an analytical process as defined by Walker and Avant (1995), the antecedents to a concept can be specified. Antecedents are elements that normally precede a given concept. A learning need has two prerequisites: the need to learn and information seeking. When possessing one of these two prerequisites, caregivers are able to tell the nurse whether they have been informed and whether they desire information regarding cognitive knowledge, affective knowledge and psychomotor knowledge. Knowles (1990) states that learning needs correspond to gaps that must be filled in cognitive knowledge, affective knowledge and psychomotor knowledge. Learning needs necessarily include the notion of learning (see Figure One).

Figure 1: Phase synthesis of the learning need concept analysis



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When she developed her measurement instrument, Derdarian categorized the learning needs of the spouse regarding her life experience with a man recently diagnosed with cancer. Derdarian (1987) proposes four categories for learning needs as they related to the disease and the personal, family and social concerns. The first category of learning needs states that the caregiver must be informed about the nature of her spouse's disease, clinical tests, treatment and prognosis. The second category details the learning need experienced by the caregiver in relation to her concerns about her personal life and her husband's livelihood. The third category of needs refers to the derived learning regarding family concerns. Lastly, the fourth category specifies that caregivers want to be informed about the concerns they have regarding their social life. For each learning need, the Derdarian instrument (1987) helps one find out:

1. Whether the individual received information.
2. Whether the information received is appropriate.
3. Whether the individual has a particular concern about the information received or desired.
4. The concern experienced by the individual.
5. Whether the individual wants to receive any information.
6. The information wanted by the individual.
7. The sources of information as perceived by the individual.

Derdarian (1987; 1989) clarifies the individual's learning needs by looking at the disease and its effects in the personal, family and social areas.

Translation of the instrument

The DINA instrument was translated into French before being subjected to modifications. In order to ensure the validity of the translation, the following method was selected:

1. Translation by the author of the original instrument from English into French.
2. Having the French translation checked by two language experts well versed in health terminology.
3. Getting both experts to agree about the translation of each question in the instrument.

This method ensures the highest precision for the translation and prevents one from losing nuances in the transfer from one language to the other.

Modifications to the DINA instrument

While it is multidimensional, the DINA instrument contains a vast number of questions (i.e. 135) and therefore is rather long. Moreover, the DINA instrument does not stop at identifying learning needs but it also provides the nurses with other information. It deals with the concern experienced by the caregiver, whether or not she is seeking information, sources for the desired information and the importance given to each learning need. It is possible to reduce the number of questions while keeping the spirit of the instrument, i.e. identifying learning needs. The number of questions in the DINA instrument was reduced for the following reasons:

1. This reduction was made easy by the fact that the original instrument contains several questions that deal with concepts other than the need to learn. These are the experienced concerns, the seeking of information, and sources of information.
2. In the clinical setting, the impressive number of questions becomes a time management problem for the nurse. The number of questions in the instrument is also too huge to complete correlational descriptive studies.
3. To take into consideration the time that can be afforded by a caregiver who provides home care to her husband living with cancer.

An explanation follows about how the number of questions in the DINA was reduced. The learning need categories established by Derdarian (1983) have been maintained. However the learning needs were reviewed to further adapt them to a caregiver population. It became necessary to cluster within the context of one need the way

of informing parents and the way of informing significant others. Only one learning need was kept regarding the needs for new affiliations, the relationship of the spouse to his friends, his work colleagues or other relations and it became the learning need related to the spouse's social life. Four new learning needs were added to adapt the questionnaire to caregivers. There is one learning need related to the physical help given to the spouse, one related to the psychological support for the spouse, one for dealing with the new situation and one regarding the resources available in the community. These four learning needs were thus added to the eleven previously selected, in order to round out the new version of the DINA instrument. Table One illustrates the 15 learning needs that comprise the French adaptation of the DINA instrument. It also lists the authors who support the learning needs of the caregiver whose spouse is living with cancer.

Now, only two questions are required to find out about a learning need. 1. "Have you been told about..." 2. What would you like to know about...". The first question helps determine whether or not individuals perceive they have been informed. According to Reboul (1980), individuals who do not have the required skill to receive the information, perceive at that time that they have not been informed. On the contrary adults who were able to integrate the information, perceive at that time that learning has occurred. The second question records the information as desired by the caregiver and gathers preferential data. According to Nadeau (1988), this is the most usual method of identifying the learning needs of a given population. Pratt (1995) points out that the best way to determine what the persons' learning needs are is to ask them what information they want. This question gives individuals the opportunity to express what they want relative to cognitive knowledge, affective knowledge and psychomotor knowledge, and what they think they should learn. While interesting, the other questions listed for each of the learning needs contained in the DINA have been deleted. After further revisions, the French version (Annex A) of the DINA instrument is composed of 30 questions, is relatively short and limits itself to the learning need concept.

Validity and reliability

In nursing, an instrument may not be used without being proven valid and reliable. Validity means that the instrument measures what it is supposed to measure (Fortin, 1996). Reliability means that the instrument gives comparable results in comparable situations (Fortin, 1996). Reliability represents the precision and consistency of the results produced by the instrument. Reliability relates to measurement instruments in exactly the same ways as dependability applies to the technical instruments used in the delivery of care (Fortin, 1996). In short, validity and reliability inform nurses about the quality of the measurement instruments used in practice and research. Let us now discuss the validity and reliability of the DINA instrument and of its French adaptation.

Validity and reliability of the DINA instrument

The validity analyses for the DINA instrument were completed by two professors and a PhD nursing student at an American university. There was 100% agreement among experts in each category for term comprehension and content validity based on the recent literature and operational definitions (Derdarian, 1983). The stability consistency of the DINA was demonstrated by correlations ranging from .88 to 1.00 for all of the components in the instrument. Results were obtained by a test-retest approach with a population of cancer patients. The internal coherence of the DINA was estimated by evaluating the correlations among all its components and for the questions contained in the four categories of the instrument. Derdarian (1987) specifies that for the DINA the Cronbach's alpha

co-efficient is .91 ($p < .05$) for the components in each of the instrument's categories while that co-efficient stands at .90 ($p < .05$) for all of the instrument's components.

Validity and reliability of the French adaptation of DINA

Content validity of the French adaptation of DINA is ensured as its 30 questions can be found in the original instrument or in the literature. Moreover, four experts, all university professors, described each of the questions in the instrument as very relevant or relevant to the concept to be measured, i.e. the learning need. The comments by the raters were carefully considered in order to improve on the wording of some of the instrument's questions. The steps followed in order to establish content validity were those put forward by Green and Lewis (1986), namely using relevant literature on the concept to be measured and bringing in experts to evaluate the phrasing of the questions. To verify the intelligibility of each question, the French DINA instrument was administered to five caregivers whose husbands live with cancer. All in all, the caregivers had no difficulty understanding the terms used in the measurement instrument.

Even though the reliability of the DINA has been demonstrated, it is desirable to establish the reliability of internal coherence and stability for the French adaptation. This adaptation of the DINA is nominal. According to Fortin (1996), the Kuder-Richardson method is best to evaluate the internal coherence reliability of a nominal measurement scale. As for the stability reliability, Cramer V correlation is indicated for nominal data between several sets of scores (Bertrand, 1986). Using the Cramer V, comparisons were made between the results obtained in the two tests. A reminder here is that the usual procedure to determine the stability of an instrument is the test-retest approach.

Results from the instrument reliability analysis

The data used to analyse the reliability of the French adaptation of DINA was gathered from 30 caregivers. These subjects of the study are all women who look after their husbands, who have a cancer in the stabilization phase, and following a cancer treatment. The caregivers live in francophone areas of New Brunswick. The mean age of the subjects was 52.10 years (± 10.11). The respondents have an educational background ranging from an elementary to a community college education. Over three-quarters (80%) of the caregivers perceived their health as good or excellent. They provide mostly psychological care, instrumental care and comfort care to their spouses living with cancer. A convenience sample was used.

The data was gathered at the homes of the caregivers and at the most convenient time for them. The aim of the study and the nature of their participation were both mentioned during the interviews. The caregivers could then decide whether or not they wanted to sign the consent form. If they accepted, they were invited to answer the questions in the French adaptation of DINA. The interview data was recorded at the time of data collection. Approximately two weeks after completing the French adaptation of DINA, 15 randomly selected subjects were approached to answer 10 of the instrument's questions for the second time. This is a necessary step to assess the stability of the measurement instrument by the test-retest approach.

According to the study data, the internal coherence and stability reliability yielded 0.78 and 0.94 correlations. When evaluating the internal consistency of a measurement scale, a correlation around 0.80 is rated as high (Nunally, 1978). Polit and Hungler (1997) state that a 0.70 correlation co-efficient is acceptable for the internal coherence of a measurement instrument. Thus it appears that the French adaptation of DINA possesses high reliability co-efficients.

Table One: Identification of the 15 learning needs recognized in the literature

Categories and types of learning needs	Authors
A. First category of needs: the spouse's disease a. Learning needs related to - spouse's disease - clinical tests - spouse's treatment - spouse's remission possibilities	A. Adams (1991), Bank, Clark and Longman (1989); Chaitchik, Shulamith, Rapoport and Algor (1992); Derdarian (1983; 1987); Hileman, Lackey and Hassanein (1992); Perry and de Meneses (1989); Volker (1991).
B. Second category of needs: personal concerns b. Learning needs related to - physical side effects linked to the cancer - psychological side effects linked to the cancer - means of physically helping the spouse - means of providing psychological support to the spouse - spouse's livelihood - means of dealing with the situation	B. Cary, Oberst, McCubbin and Hughes (1991); Chaitchik, Shulamith, Rapoport and Algor (1992); Derdarian (1987; 1989); Grahn and Johnson (1990); Jassak (1992); Longman, Atwood, Sherman, Benedict and Shang (1992); Tringali (1986).
C. Third category of needs: family concerns c. Learning needs related to - how to inform the children - how to inform family members and friends - spouse's roles	C. Derdarian (1987; 1989)
D. Fourth category of needs: social concerns d. Learning needs related to - spouse's social relationships - available community resources	D. Adams (1991), Derdarian (1987); Grahn and Johnson (1990); Hileman, Lackey and Hassanein (1992); Perry and de Meneses (1989).


Although our sample was not randomly selected and was limited to 30 subjects, the instrument was judged to be valid and reliable. Other studies could make use of DINA's French adaptation to enhance the validity and reliability process for the measurement instrument. It is believed that this measurement instrument could be used in a longitudinal study to highlight variations in the learning needs of the caregivers whose husbands live with cancer. Another study could do a comparison of the learning needs of caregivers and cancer patients.

Usefulness of the instrument for nursing practice

In nursing care, the nurse takes on an educational role with caregivers whose spouses are living with cancer. To assume that role, the oncology nurse helps the caregivers to become aware of their need to learn in a warm, secure and non-threatening atmosphere. She focuses especially on how the caregivers perceive their learning situation. The nurse invites them to express the information they wish to have regarding learning. The French adaptation of DINA is a useful tool to discover the caregivers' learning needs (see Annex A). It is applied in a flexible manner and the nurse relies on an educational process centered on the caregivers to meet their learning needs. The nurse prepares educational activities expressly created to help the caregiver develop cognitive knowledge, affective knowledge and psychomotor knowledge. The satisfaction of her learning needs

brings the caregiver to a better understanding of her husband's disease and of the actions that can be taken to live better and to provide better care for a person with cancer. The satisfaction expressed by the caregivers about the achieved learning is a significant indicator of the quality of care provided to this population.

Conclusion

One can conclude that the French adaptation of DINA is a measurement that meets validity and reliability criteria. The author called upon the judgment of experts in the fields of learning and nursing to ensure that the instrument actually measures the learning needs of a caregiver population. The study data demonstrates that the instrument is highly reliable. It is clear that the instrument's questions are linked together and that the observed phenomenon is stable. However, further research is needed to enhance the measurement instrument validity and reliability process. The French adaptation of the DINA instrument helps discover the learning needs from the perspective of the caregiver. Thus the nurse encourages the caregiver to share the perception she has of what she would like to learn. In a caring environment, the nurse displays her cognitive and emotional understanding in order to adequately perceive the caregiver's reality as a learner. 

Annex A: French adaptation of the DINA instrument

The French adaptation of DINA includes a list of 15 learning needs. Two questions are asked about each of these learning needs. There are no right or wrong answers to these questions. The correct answer is when your answer best describes what you think at the moment about achieved or desired learning.

1. Have you been told about your spouse's disease diagnosis? (1) yes (2) no
2. What information would you like to receive about your spouse's disease?
3. Have you been told about tests your spouse may need to have? (1) yes (2) no
4. What information would you like to receive about the tests your spouse may need to undergo?
5. Have you been told about the treatment your spouse is receiving? (1) yes (2) no
6. What information would you like to receive about the treatment received by your spouse?
7. Have you been told about the course of your spouse's disease and future plans for yourselves as a couple? (1) yes (2) no
8. What information would you like to receive about the course of your spouse's disease and future plans for yourselves as a couple?
9. Have you been told about the way the disease may affect your spouse's livelihood? (1) yes (2) no
10. What information would you like to receive about the way the disease may affect your spouse's livelihood?
11. Have you been told about the potential physical side effects the disease or treatment may have on your spouse? (1) yes (2) no
12. What information would you like to receive about the potential physical side effects the disease or treatment may have on your spouse?
13. Have you been told about the potential psychological side effects the disease or treatment may have on your spouse? (1) yes (2) no
14. What information would you like to receive about the potential psychological side effects the disease or treatment may have on your spouse?
15. Have you been told about how you can physically help your spouse? (1) yes (2) no
16. What information would you like to receive about how you can physically help your spouse?
17. Have you been told about how you can psychologically help your spouse? (1) yes (2) no
18. What information would you like to receive about how you can psychologically help your spouse?
19. Have you been told about the way the disease can affect your spouse's roles as husband, citizen and worker? (1) yes (2) no
20. What information would you like to receive about the way the disease can affect your spouse's roles as husband, citizen and worker?
21. Have you been told about how you can inform your children about their father's disease? (1) yes (2) no
22. What information would you like to receive about how you can inform your children about their father's disease?
23. Have you been told about how you can inform family members and friends about your spouse's disease? (1) yes (2) no
24. What information would you like to receive about how you can inform family members and friends about your spouse's disease?
25. Have you been told about the way your spouse's disease may alter his relationship with his friends? (1) yes (2) no
26. What information would you like to receive about the way your spouse's disease may alter his relationships with his friends?
27. Have you been told about the way to deal with your new situation? (1) yes (2) no
28. What information would you like to receive about the way to deal with your new situation?
29. Have you been told about the community resources that are available to help you? (1) yes (2) no
30. What information would you like to receive about the community resources that are available to help you?
31. Is there anything else that you wish information about?

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