

Pain Behaviours and Personality-Debridement of Diabetic Foot Ulcers

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Abstract

Pain behaviours may vary with personality types though this aspect is not considered while rendering care during painful procedures. This may lead to under- or over-estimation of pain. This study examined the effect of personality on pain behaviours during debridement of diabetic foot ulcers. Association between domains of pain behaviours and personality combinations of clients undergoing wound care of diabetic foot were studied using frequency, percentage and chi-square value.

The researcher adopted Malayalam version of Eysenck's Personality Inventory to categorise the subjects into three personality types viz. extrovert, ambivert and introvert. Each personality type was further classified into either 'neurotic' or 'stable'. Thus, a subject will fall into any one of the following personality combinations namely, Extrovert stable, Extrovert neurotic, Introvert neurotic, Introvert stable, Ambivert stable and Ambivert neurotic.

In this study, domains of pain expression behaviours measures presence or absence of certain clusters of body language that is accompanied or unaccompanied by spoken language related to pain expression during debridement of wound. Pain expression behaviours are categorised into different domains such as facial expression, physical symptom, treatment refusal, vocalisation and tense body language. Individual domains are measured as mild (1-8), moderate (9-15) and severe scores (16-25) using a tool - Scale of pain expression behaviours (SOPEB), standardised by the researcher. It is used daily during debridement from day 1 to day 14 along with routine wound care. A tick mark indicating the presence of pain expression behaviour is given the score of 1 and a cross mark for its absence is given the score of 0 in each column containing statements of behaviour. Add up the scores in each row to find out item score in the scoring column on right side of statements. Add up the cumulative scores on each row to find out the total score.

Extrovert stable as well as neurotics and ambivert stable showed severe scores of pain expression behaviours for facial expression domain ($\chi^2=101.9$; $p=0.000$). Introvert stable as well as neurotic and ambivert stable as well as neurotic showed severe scores of pain expression behaviours for physical

symptom domain ($\chi^2=102.5$, $p=0.000$). Introvert stable showed severe scores of pain expression behaviours for treatment refusal domain ($\chi^2=107.1$ $p=0.000$). Introvert stable and ambivert neurotic showed severe scores of pain expression behaviours for vocalisation domain ($\chi^2=95.2$, $p=0.000$). Introvert stable and neurotic showed severe scores of pain expression behaviours for tense body language ($\chi^2=91.7$, $p=0.000$). Personality characteristics in patient are associated with pain behaviours, which should guide clinicians while caring in pain settings. This study findings can be utilised for effective pain communication considering the personality of the patient which is necessary for adequate appraisal of pain intensity during painful treatment.

Objective

This study attempted to examine the effect of personality on pain behaviours during debridement of diabetic foot ulcers. Exhibition of pain behaviours may vary with personality types and this aspect is not considered while rendering care during painful procedures. This may lead to under- or over-estimation of pain. This study examined the effect of personality on pain behaviours during debridement of diabetic foot ulcers.

Review of Literature

Pain behaviours must be assessed within the context of personality. The proponents of psychosomatic medicine believed in the existence of physiological mechanisms linking personality to illness (Fava & Sonino, 2010). It is generally acknowledged that more prosaic explanations for correlations between personality and illness may be derived from the fact that personality differences are often associated with differences in health behaviour. Further evidence regarding the mind-body relationship in clinical and basic science

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Table 1: Frequency, percentage and chi-square value of subjects according to the relationship between facial expression domain and personality combinations of clients undergoing wound care of diabetic foot (N=120)

Facial expression score	Personality combination												Total	
	Extrovert stable		Extrovert neurotic		Introvert stable		Introvert neurotic		Ambivert stable		Ambivert neurotic			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Mild	2	8.7	1	2.8	11	91.7	9	100.0	1	5.6	22	100.0	46	38.3
Moderate	2	8.7	7	19.4	0	0.0	0	0.0	3	16.7	0	0.0	12	10.0
Severe	19	82.6	28	77.8	1	8.3	0	0.0	14	77.8	0	0.0	62	51.7
Total	23	100	36	100.0	12	100.0	9	100.0	18	100	22	100.0	120	100

($\chi^2=101.9$; p=0.000)

Table 2: Frequency, percentage and chi-square value of subjects according to relationship between physical symptom domain and personality combinations of clients undergoing wound care of diabetic foot (N=120)

Physical symptom score	Personality combination												Total	
	Extrovert stable		Extrovert neurotic		Introvert stable		Introvert neurotic		Ambivert stable		Ambivert neurotic			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Mild	20	87	33	91.7	1	8.3	1	11.1	0	0.0	0	0.0	55	45.8
Moderate	3	13	3	8.3	3	25.0	1	11.1	1	5.6	5	22.7	16	13.3
Severe	0	0	0	0.0	8	66.7	7	77.8	17	94.4	17	77.3	49	40.8
Total	23	100	36	100.0	12	100.0	9	100	18	100	22	100.0	120	100.0

($\chi^2 = 102.5$; p = 0.000)

Table 3: Frequency, percentage and chi-square value of subjects according to relationship between treatment refusal domain and personality combinations of clients undergoing wound care of diabetic foot (N=120)

Treatment refusal score	Personality combination												Total	
	Extrovert stable		Extrovert neurotic		Introvert stable		Introvert neurotic		Ambivert stable		Ambivert neurotic			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Mild	21	91.3	35	97.2	1	8.3	9	100.0	14	77.8	21	95.5	101	84.2
Moderate	2	8.7	1	2.8	1	8.3	0	0.0	4	22.2	1	4.5	9	7.5
Severe	0	0.0	0	0.0	10	83.3	0	0.0	0	0.0	0	0.0	10	8.3
	23	100.0	36	100.0	12	100.0	9	100.0	18	100.0	22	100.0	120	100.0

($\chi^2= 107.1$; p=0.000)

that is based on the latest advanced technology is necessary (Murakami & Nakai, 2017). The pain assessment needs to take into account the relational attributes of physical behaviour (Paraschiv-Ionescu et al, 2016). EPI by Hans Eysenck contains 2 dimensions namely introversion-extroversion dimension and stability-neuroticism dimension. Introverts are slower to habituate sensory stimuli.

Two broad personality types are extroverts and introverts. These types are known to have unique ways of feeling re-energised and motivated. They each have characteristic ways of interacting with the world and processing information (Atee et al, 2013; Chapman et al, 2013). In a study with electronic Pain Assessment Tool in patients with inability to self-report, automated facial expression assessment provided objective and reproducible evidence of the presence of pain. It offers a new method to assess pain in people with

pressure pain to the finger nail bed at high and low intensities despite rating more intense pain as more difficult to communicate [t(25)=2.21, p=0.037], participants produced significantly longer verbal pain descriptions and more co-speech gestures in the high intensity pain condition [Words: t(25)=3.57, p=0.001; Gestures: t(25)=3.66, p=0.001]. Findings bring out that in addition to conveying detailed semantic information about pain, speech and co-speech gestures may provide a cue to pain intensity, with implications for the treatment and support received by pain sufferers (Rowbowtham et al, 2014).

Methodology

The study was conducted in general and taluk hospitals of Kottayam district (Kerala). Clearance was obtained from IEC and from Directorate of Health

dementia who can no longer self-report their pain. A study that applied a model of pain communication examined the distinction between verbal and non-verbal pain expression in their prediction of punishing, empathic, and solicitous spouse responses to patient. Pain expression in both verbal and non-verbal modes of communication is important for positive and negative spousal responses (Wilson et al, 2013). Pain communication is varied, with sufferers utilising verbal and non-verbal behaviours such as facial expressions, and gestures to communicate their experience. Research suggests that the production of non-verbal pain behaviours is positively associated with pain intensity. In a video-recorded semi-structured interviews. When participants (N=26) were exposed to experimentally elicited

Table 4: Frequency, percentage and chi-square value of subjects according to relationship between vocalisation domain and personality combinations of clients undergoing wound care of diabetic foot (N=120)

Vocalisation score	Personality combination												Total	
	Extrovert stable		Extrovert neurotic		Introvert stable		Introvert neurotic		Ambivert stable		Ambivert neurotic			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Mild	17	73.9	33	91.7	1	8.3	7	77.8	15	83.3	2	9.1	75	62.5
Moderate	6	26.1	3	8.3	1	8.3	2	22.2	1	5.6	1	4.5	14	11.7
Severe	0	0.0	0	0.0	10	83.3	0	0.0	2	11.1	19	86.4	31	25.8
Total	23	100.0	36	100.0	12	100.0	9	100.0	18	100.0	22	100.0	120	100.0

($\chi^2=95.2$; $p=0.000$)

Table 5: Frequency, percentage and chi-square value of subjects according to relationship between tense body language domain and personality combinations of clients undergoing wound care of diabetic foot (N=120)

Tense body language score	Personality combination												Total	
	Extrovert stable		Extrovert neurotic		Introvert stable		Introvert neurotic		Ambivert stable		Ambivert neurotic			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Mild	20	87.0	34	94.4	4	33.3	1	11.1	15	83.3	19	86.4	93	77.5
Moderate	3	13.0	2	5.6	0	0.0	0	0.0	3	16.7	3	13.6	11	9.2
Severe	0	0.0	0	0.0	8	66.7	8	88.9	0	0.0	0	0.0	16	13.3
Total	23	100.0	36	100.0	12	100.0	9	100.0	18	100.0	22	100.0	120	100.0

($\chi^2=91.7$; $p=0.000$)

services. Consecutive patients who were brought to the hospital with the history of diabetic foot ulcer within a period of one year were taken up for the study. Informed consent from the patient was taken. The researcher used Malayalam version of Eysenck's Personality Inventory to categorise the subjects into three personality types such as extrovert, ambivert and introvert. Each personality type is further classified into either 'neurotic' or 'stable'. Following are the scores for classification of personality types.

Extroversion scores: >15 = Extrovert, $9-15$ = Ambivert, <9 = Introvert

Stability scores: >14 = Neurotism, $6-14$ = Stable, <6 = Highly stable.

Thus a subject will fall into any one of the following personality combination namely, Extrovert stable, Extrovert neurotic, Introvert neurotic, Introvert stable, Ambivert stable and Ambivert neurotic. Extrovert stable as well as neurotics and ambivert stable showed severe scores.

In this study, domains of pain expression behaviours measure presence or absence of certain clusters of body language that is accompanied or unaccompanied by spoken language related to pain expression during debridement of wound. Pain expression behaviours are categorised into different domains such as facial expression, physical symptom, treatment refusal, vocalisation and tense body language. Scale of pain expression behaviours

(SOPEB) were used on 120 diabetic foot ulcer patients admitted in 6 different taluk and general hospitals of Kottayam district. Presence of behaviours during the procedure was observed by the researcher using SOPEB during debridement and was coded using scores assigned to presence of each item. Each domain is scored out of 25. Individual domains are measured scores as follows: mild (0-8), moderate (9-15) and severe scores (16-25) using the tool SOPEB standardised by the researcher. It is

used daily during debridement from 1st to 14th day along with routine wound care. A tick mark indicating the presence of pain expression behaviour is given the score of 1 and a cross mark for its absence is given the score of 0 in each column containing statements of behaviour. Add up the scores in each row to find out item score in the scoring column on right side of statements. Add up the cumulative scores on each row to find out the total score.

Results

Findings related to the association of domains of pain expression behaviours and personality types

Null < hypothesis 1

H01: There is no significant association between domains of pain expression behaviours and personality types of clients undergoing debridement for diabetic foot ulcers.

Extrovert stable as well as neurotics and ambivert stable shows severe scores of pain expression behaviours for facial expression domain. There was significant difference between modalities with respect to relationship between facial expression domain and personality combinations of clients undergoing wound care of diabetic foot (Table 1). Thus, the personality characteristics in-patient are associated with pain behaviours, which should guide clinicians while caring in pain settings.

Table 2 shows that Introvert stable as well as

neurotic and ambivert stable as well as neurotic showed severe scores of pain expression behaviours for physical symptom domain. There was significant difference between modalities with respect to relationship between physical symptom domain and personality combinations of clients undergoing wound care of diabetic foot.

Introvert stable showed severe scores of pain expression behaviours for treatment refusal domain (Table 3). There was significant difference between modalities with respect to relationship between treatment refusal domain and personality combinations of clients undergoing wound care of diabetic foot.

Introvert stable and ambivert neurotic showed severe scores of pain expression behaviours for vocalisation domain (Table 4). There was significant difference between modalities with respect to relationship between vocalisation domain and personality combinations of clients undergoing wound care of diabetic foot

Introvert stable and neurotic showed severe scores of pain expression behaviours for tense body language (Table 5): There was significant difference between tense body language domain and personality combinations of clients undergoing wound care of diabetic foot.

Discussion

Exhibition of pain behaviours are often not addressed during nursing care. Variance seen associated with pain expression among different personality types should be considered while rendering care during painful procedures. Employing the present study findings can prevent under- or over-estimation of pain. This study examined the effect of personality on pain behaviours during debridement of diabetic foot ulcers. Extrovert stable as well as neurotics and ambivert stable showed severe scores of pain expression behaviours for facial expression domain ($\chi^2=101.9$; $p=0.000$).

- Introvert stable as well as neurotic and ambivert stable as well as neurotic showed severe scores of pain expression behaviours for physical symptom domain ($\chi^2= 102.5$, $p=0.000$).
- Introvert stable showed severe scores of pain expression behaviours for treatment refusal domain ($\chi^2= 107.1$, $p=0.000$).
- Introvert stable and ambivert neurotic showed severe scores of pain expression behaviours for vocalisation domain ($\chi^2= 95.2$, $p=0.000$).
- Introvert stable and neurotic showed severe scores of pain expression behaviours for tense body language ($\chi^2= 91.7$; $p=0.000$).

Since the p-value (0.000) is less than the significance level (0.05), the null hypothesis cannot be

accepted. Thus, researcher concludes that there is a relationship between the domains of pain expression behaviours and personality types. So H01 is rejected and it is concluded that there is significant relationship between domains of pain expression behaviours and personality types. Exhibition of pain behaviours may vary with personality types.

Recommendation

Personality should be assessed with other measures to gain a complete patient picture as well as a part of the evaluation of interventions. Personality characteristics in patients are associated with pain behaviours, which should guide clinicians while caring in pain settings.

Nursing Implications

Nurses should develop strategies for promoting evidence-based pain management practices. Implementation of the personality assessment by nurses should be made realistic in the in-patient setting. To this intent, policies need to be developed and strengthened with nurses.

Conclusion

Medications should not be the only intervention as a modality of pain management for pain relief. Personality-based individualised pain management strategies should be employed in each care settings.

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