Patient Education and Counseling 97 (2014) 180–187

Contents lists available at ScienceDirect

Patient Education and Counseling

journal homepage: www.elsevier.com/locate/pateducou

Communication study

Applying the Verona coding definitions of emotional sequences (VR-CoDES) in the dental context involving patients with complex communication needs: An exploratory study

Yuefang Zhou [a,*], Rolf Black [b], Ruth Freeman [c], Daniel Herron [b], Gerry Humphris [a], Rachel Menzies [b], Sandra Quinn [c], Lesley Scott [b], Annalu Waller [b]

[a] School of Medicine, University of St Andrews, St Andrews, UK
[b] School of Computing, University of Dundee, Dundee, UK
[c] School of Dentistry, University of Dundee, Dundee, UK

ARTICLE INFO

Article history:
Received 13 May 2014
Received in revised form 1 July 2014
Accepted 13 July 2014

Keywords:
The VR-CoDES
Dental patients
Emotional distress
Intellectual disabilities

ABSTRACT

Objective: The VR-CoDES has been previously applied in the dental context. However, we know little about how dental patients with intellectual disabilities (ID) and complex communication needs express their emotional distress during dental visits. This is the first study explored the applicability of the VR-CoDES to a dental context involving patients with ID.
Methods: Fourteen dental consultations were video recorded and coded using the VR-CoDES, assisted with the additional guidelines for the VR-CoDES in a dental context. Both inter- and intra-coder reliabilities were checked on the seven consultations where cues were observed.
Results: Sixteen cues (eight non-verbal) were identified within seven of the 14 consultations. Twenty responses were observed (12 reducing space) with four multiple responses. *Cohen's Kappa* were 0.76 (inter-coder) and 0.88 (intra-coder).
Conclusion: With the additional guidelines, cues and responses were reliably identified. Cue expression was exhibited by non-verbal expression of emotion with people with ID in the literature. Further guidance is needed to improve the coding accuracy on multiple providers' responses and to investigate potential impacts of conflicting responses on patients.
Practice implications: The findings provided a useful initial step towards an ongoing exploration of how healthcare providers identify and manage emotional distress of patients with ID.

1. Introduction

For most people, the dental environment is anxiety-provoking. Patients with intellectual disabilities (ID)[1] and complex communication needs[2] often find their dental visits frightening [1]. This is due largely, to their reduced cognitive ability to fully understand the process and consequences of their dental treatment and/or their impaired communication capacity to express their feelings during dental consultations. Provision of meaningful communication and the quality of patient-centred care, therefore, often depend on the ability of the dental professional team to identify and interpret the verbal and non-verbal cues of emotional distress of this patient group. A reliable and valid behavioural observation scheme becomes a useful tool to measure affective communicative behaviour of this patient group and assist clinicians in effective management of emotional distress of these patients. Although the *Verona coding definitions of emotional sequences* (VR-CoDES) has

* Corresponding author at: School of Medicine, University of St Andrews, St Andrews, Fife KY16 9TF, Scotland, UK. Tel.: +44 1334 463564; fax: +44 1334 467470.
E-mail addresses: yz10@st-andrews.ac.uk, zhouyuefang@hotmail.com (Y. Zhou).

[1] The term 'intellectual disability' will be used throughout this article in preference to a number of other terms (such as learning disability, mental retardation, mental handicap and mental deficiency) in line with current usage of terminology in recent UK Department of Health publications since 2011.

[2] Many intellectual disabilities are often associated with communication impairments. People who sit at the more severe end of the communication impairment severity spectrum are usually considered as having complex communication needs. As a significant number of participants in our study have a moderate level of intellectual disabilities, we use the term 'complex communication needs' in a broader sense to include anyone having communication difficulties caused by their intellectual disabilities.

http://dx.doi.org/10.1016/j.pec.2014.07.023
0738-3991/

been reliably applied in a dental setting with a standard patient group [2], it is unknown how dental patients with ID express their emotional distress using this scheme. As part of a larger study aiming to improve communication between dental professionals and special-needs patients, this study focuses on investigating the applicability of the VR-CoDES in the dental setting involving patients with complex communication needs.

1.1. Assessing emotional distress in people with ID

People with ID usually have complex communication needs and they often rely on augmentative and alternative communication (AAC) to express thoughts and feelings. The use of facial expression, body language and gestures are the three main unaided, informal communication channels in the AAC system [3]. Therefore, a suitable coding scheme is required to capture the facial and behavioural expressions of emotion within this population. More importantly, the dental context and the interactive nature of a dental consultation should also be reflected. Although the emotion facial action coding system (EMFACS [4,5] was appropriate to measure facial expressions of emotion of dental patients, it would fail to capture health providers' interpretation of emotions using this scheme. Similarly, other potentially suitable schemes (e.g. *The disability distress assessment tool*:DisDAT [6], and some vocal affect expression assessment tools [7]) all neglected the important interactions between expression and impression (response), an important issue highlighted in both the intellectual disability literature [8] and the emotion research literature [9]. Despite a small sample size ($n = 13$), Wright et al. [2] found that the VR-CoDES could reliably code (with satisfactory inter- and intra-coder scores) dental patients' expressions of emotional distress, as well as dental professionals' responses to patients' cues and concerns. This initial finding has made the VR-CoDES particularly desirable to addressing what has been highlighted in the literature of studying both emotion expression and interpretation (response) of these emotions. Hence, we tentatively applied VR-CoDES with this special patient group in the dental context.

1.2. The VR-CoDES in the dental context

The VR-CoDES is a consensus based system to studying patients' expressions of emotional distress [10] and health providers' responses to patients' expressions emotions [11]. It was developed primarily from medical consultations and only relatively recently has been applied to the dental context [2]. Two dental-specific features were highlighted by Wright et al. [2], which presented challenges in applying the VR-CoDES in the dental context: (1) multiple dental professionals, resulting in multiple responses to patient distress cues and concerns; and (2) occurrences of non-verbal behaviours, arising from dental treatment conducted in the mouth.

A number of guidelines were, therefore, developed by the research team to tackle these challenges [2], which have relevance when applying the VR-CoDES in communications involving patients with complex communication needs. For patients with ID attending dental treatment, having an additional dental worker at site (e.g. a dental nurse or a dental support worker) is important for successful and efficient delivery of treatment. Patients' expressions of emotional needs are usually recognized and/or responded by either, or both, dental staff. According to the first of Wright et al.'s guidelines which deals with multiple staff members, when the responses follow each other chronologically, the second staff's speech should not be coded as a provider response unless it is directly related to the patient's cue or concern. We were, therefore, interested in exploring, to what extent, this guideline can be applied in patients with ID; particularly when a dental nurse often responds to the dentist, who has initially responded to the patient's cue or concern. In addition, staff non-verbal behaviours are frequently used to assist communication with dental patients with ID (e.g. gesture) and to reduce anxiety (e.g. a reassuring touch). This guideline did not provide additional information on how to code staff non-verbal responses.

The second guideline from Wright et al. was developed to assist coding non-verbal expressions of emotional distress. This guideline was developed due to the impracticality of patient verbal speech during the dental treatment conducted in the mouth. The guideline suggests a careful examination of the 'ah, ooooho' type of verbal expressions and to code as a non-verbal *Cue F* when they carry the function of beyond, merely, describing symptoms. For patients with ID, the 'ah, ooooho' type of verbal expressions might be occurring due to an extant dental condition and/or their intellectual/communication difficulty. Again, we are interested in investigating how this guideline can be implemented in patients with ID.

1.3. Aim of the study

We attempted to apply the VR-CoDES, assisted with additional guidelines from Wright et al.'s study, in the dental context involving patients with intellectual disabilities and complex communication needs. Specifically, we posed the following research questions:

(1) Is the VR-CoDES applicable to the dental context where patients with complex communication needs are involved? In other words, we are to explore (a) whether cues, concerns and responses are identifiable using the VR-CoDES-CC and VR-CoDES-P, assisted with the additional guidelines for the VR-CoDES in a dental context; and (b) whether cues, concerns and responses can be reliably coded using the VR-CoDES?
(2) If the VR-CoDES is applicable in this setting, to what extent do patients with complex communication needs express cues and concerns during a dental consultation?
(3) How do dental professionals respond to patient cues and concerns?
(4) Is there a need for modification of both systems of VR-CoDES-CC and VR-CoDES-P for future application of the VR-CoDES in a similar setting?

2. Methods

2.1. Participants

Fourteen dental consultations from three National Health Service (NHS) special dental care service units in east Scotland were video recorded during a two-month period between April and June 2013. This involved fourteen patients with complex communication needs (six male and eight female) and eight dental staff (four female dentists and four female dental nurses). All patient participants were seen regularly at the special care dental service due to their varying degree of intellectual disabilities (Down syndrome $n = 4$, Asperger syndrome $n = 3$, attention deficit hyperactivity disorder (ADHD) $n = 1$, non-specific ID $n = 6$). Assessment was made informally by the clinician, based on patient responses to questions relating to their general wellbeing, as well as those related to specific dental issues. Professional experience and intuition were the basis for these decisions rather than any formal assessment. Twelve of them (86%) had a moderate level of ID, only one patient had mild level and one patient had severe and profound ID. All patient participants were, however,