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# Evaluation of the *BPSD Guide* electronic application (App)

Dementia Collaborative Research Centre

## Summary report

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### 1. Introduction

Behavioural and psychological symptoms of dementia (BPSD) are associated with poor outcomes for those with dementia and their carers. In 2012 the Department of Social Services (DSS) funded the Dementia Collaborative Research Centre (DCRC) to develop the document *Behaviour Management, A Guide to Good Practice, Managing Behavioural and Psychological Symptoms of Dementia* (1). The aim of the document is to provide guidance for clinicians in their role of assisting residential aged care facility staff, community care staff and family members caring for persons living with dementia, who present with BPSD.

In 2014 the DCRC was further funded by the DSS to develop the *BPSD Guide* electronic Application (App; 2) based on module summaries of the *Guide*. The App was designed to support clinicians by providing ready access to concise, evidence based information. The App is available for free download to iPhone, iPad and Android devices via the Apple iTunes and Google Play stores.

Emerging technologies such as electronic applications (Apps) have the potential to make evidence based recommendations more accessible in clinical practice and increased use in the future is anticipated. Our progressively more 'tech-savvy' society increasingly demands delivery of information beyond traditional hard copy versions. With the inevitable integration of technologies such as Apps into dementia care, research is needed as to their usability, acceptability and effectiveness for the end user and the potential impact on those with dementia. Likewise, the development and use of electronic Applications via hand held devices in the field requires an awareness of ethical, privacy and policy issues. Currently no standards exist for the control of the content of Apps and in this time of rapidly changing technology it is important to ensure evidence based content that can be used with confidence (3).

### 2. Aims

This study aimed to evaluate the effectiveness of the *BPSD Guide* App to support clinicians in their role of assisting residential aged care facility staff, community care staff and family members caring for persons with dementia, who present with BPSD. Specifically, this study:

1. examined clinicians' experience of using the App in the field, including usefulness, accessibility and usability
2. assessed the appropriateness and capacity of the App to guide clinical practice by providing ready access to information

### 3. Method

The project to develop the *BPSD Guide App* encompassed the following phases:

1. Conception and consultation
2. Layout and planning
3. Design implementation
4. Release

Each DBMAS throughout Australia was advised of the availability of the App for download and the upcoming evaluation project. DBMAS services operate according to a diverse range of models, physical environments and auspicing organisations with clinicians from a range of disciplines. Access to technology and the internet varies between and within regions of each State and Territory.

Three months after the release of the *BPSD Guide App* we conducted an evaluation of clinicians' reported experience of using this resource in the field and the effectiveness of the App to guide clinical practice. The approach to evaluation was twofold.

#### App user data and analytics

The updated App was designed to collect user data electronically until the nominated data collection cut-off point. This included information such as number of downloads, number of active users, sections of the App most frequently accessed and duration of access. On opening the App users were presented with a short survey. The survey requested demographic information such as the user's professional background or primary role as well as the State/Territory and the sector they were working in (residential, acute or community). A secure online database hosted by *Google Analytics* collected anonymised user data over a seven month period (1 December 2014 – 31 July 2015) from the time the updated version of the App was available to be downloaded via the *Apple iTunes* and *Google play* stores. The online database enabled the researchers to identify and analyse meaningful patterns around the use of the App.

#### Focus groups and interviews with clinicians

Data regarding clinicians' use of the App in their clinical practice were gathered via focus groups and interviews in each State and Territory. A total of 61 clinicians participated in a focus group or an interview via telephone or face-to-face contact. Focus groups comprising 4-10 participants were conducted in each State and Territory. Consultation included those experienced in service provision to remote and regional areas as well as Aboriginal and Torres Strait Islander Peoples and those from Culturally and Linguistically Diverse (CALD) communities. Questions focused on clinicians' use of the *BPSD Guide App* in the field as well as potential issues, barriers and/or enablers to its use in dementia care settings.

Data mining analysis was conducted to identify thematic groupings or clusters within the qualitative data from the focus groups and interviews using *Leximancer*, an automated content analysis software package. *Leximancer* examines the transcribed text to select a ranked list of important words based on how frequently they present and co-occur (4). Bayesian logic is used to generate concepts and no predetermined themes are applied to the data by the researchers (5), ensuring the identification of concepts is not influenced by researcher bias. Concepts are ranked according to the number of times they appear in the data set and the number of times each concept relates to other identified concepts (5, 6). An

advantage of using *Leximancer* software is the identification of the global significance of concepts which helps to avoid unwarranted attention on particular anecdotal evidence, that may not be representative (4). The results of the *Leximancer* data mining analysis are presented as a ranked list of concepts and a concept map.

Thematic analysis was also undertaken as a method of identifying, analysing and reporting patterns or themes within the data (7-9). Transcripts were initially examined to identify ‘units of analysis’ which are “extended phrases and/or sentences rather than shorter codes” (10). All data items were examined in the coding process. These ‘units of analysis’ (11) were then categorised conceptually to create themes. Nvivo 10 analytic software was used to assist with data management.

## 4. Results

### User demographics and analytics

During the period 1 December 2014 to 31 July 2015 a total of 4,016 App users were identified and the total number of sessions recorded was 8,521. The total number of users in Australia during the defined period was 923 and the total number of sessions was 3,836. The number of users in Australia steadily increased from the App’s release in 2014. User numbers were highest in April with 262 people using the App over 814 sessions.

More users accessed the App on a smartphone device than a tablet device. Apple devices in both smartphone and tablet categories were more commonly used than android devices. Worldwide and Australia-specific device usage was similar (figure 1).

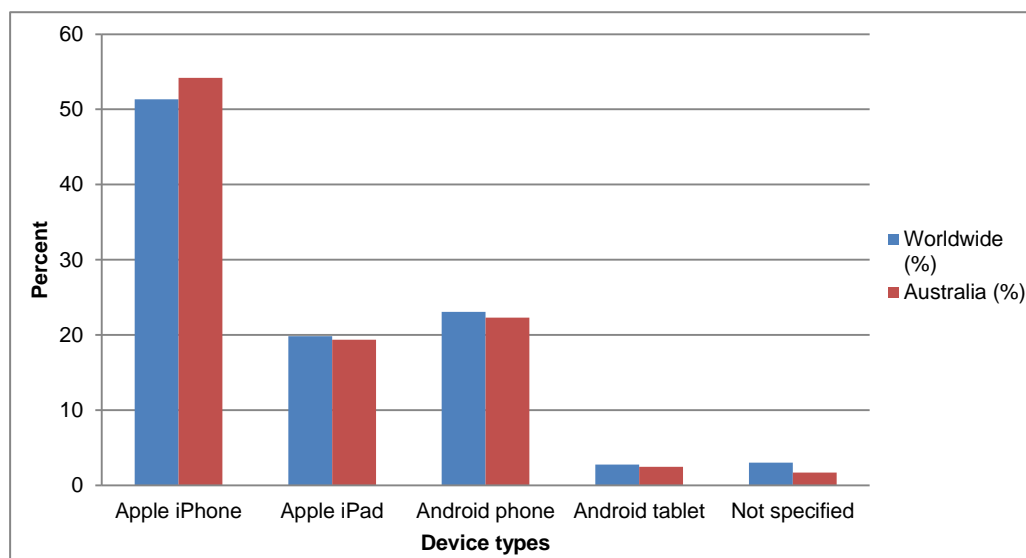


Figure 1 Device type

Of the users that agreed to participate in the study, 36 percent (n=1435) completed the demographic survey. The most common primary role/professional backgrounds of respondents were registered nurse or practice nurse (20 percent), allied health professional (14 percent), facility or community manager (8 percent) and assistant in nursing/personal care assistant (8 percent) (figure 2). Five percent of users were family carers. A small number of users indicated that they were Aboriginal and/or Torres Strait Islander health workers (n=5) or bilingual/bicultural/CALD health workers (n=3). The settings in which users

provided care varied across residential aged care (38 percent), community care (24 percent), acute care (16 percent), home (15 percent) and other (8 percent).

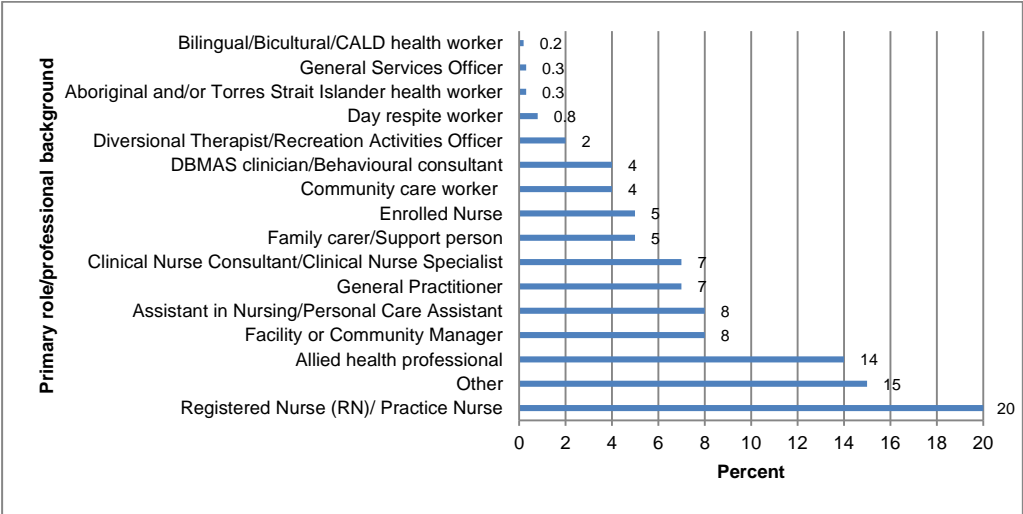


Figure 2 Primary role of users

**App usage**

The user analytic data reports new versus returning users of the App and the screens viewed. Of the total users, approximately 25 percent were returning users. Tables 1 and 2 provide an overview of the total views of the most accessed BPSD and the screens viewed within these BPSD. Overall, the clinical scenario in *Aggression* was the screen viewed for the longest time period (1:21 mins).

Table 1 most accessed BPSD

Screen	Total views
Aggression	3,796
Disinhibited behaviours	2,235
Psychotic symptoms	1,854
Agitation	1,678
Wandering	1,508
Vocally disruptive behaviours	1,332
Nocturnal disruption	1,261
Anxiety	895
Depression	644
Apathy	407

Table 2 Screens viewed within most accessed BPSD

BPSD	Sub screen	Total views
Aggression	Presenting symptoms	625
Disinhibited behaviours	Presenting symptoms	398
Psychotic symptoms	Presenting symptoms	384
Aggression	Contributing factors	355
Agitation	Presenting symptoms	325
Aggression	Assessment tools	281
Aggression	Differential diagnosis	234
Aggression	Psychosocial/environmental interventions	231
Vocally disruptive behaviours	Presenting symptoms	224
Wandering	Presenting symptoms	224
Nocturnal disruption	Presenting symptoms	223
Aggression	Conclusions	212

Aggression	Biological/pharmacological interventions	201
Disinhibited behaviours	Contributing factors	196
Disinhibited behaviours	Assessment tools	192
Anxiety	Presenting symptoms	179
Psychotic symptoms	Assessment tools	176
Disinhibited behaviours	Psychosocial/environmental interventions	167
Aggression	Clinical scenario	163
Agitation	Contributing factors	162
Aggression	Precautions	157
Disinhibited behaviours	Clinical scenario	154
Psychotic symptoms	Contributing factors	152
Vocally disruptive behaviours	Contributing factors	147

## Clinicians' perspectives on the *BPSD Guide App*

Clinicians reported the manner in which they used the App, aspects they found useful and barriers they faced in using the App (figure 2) via the focus groups and interviews. Clinicians also identified other potential target groups for the App, barriers others might face and suggestions for future development of the App (table 3).

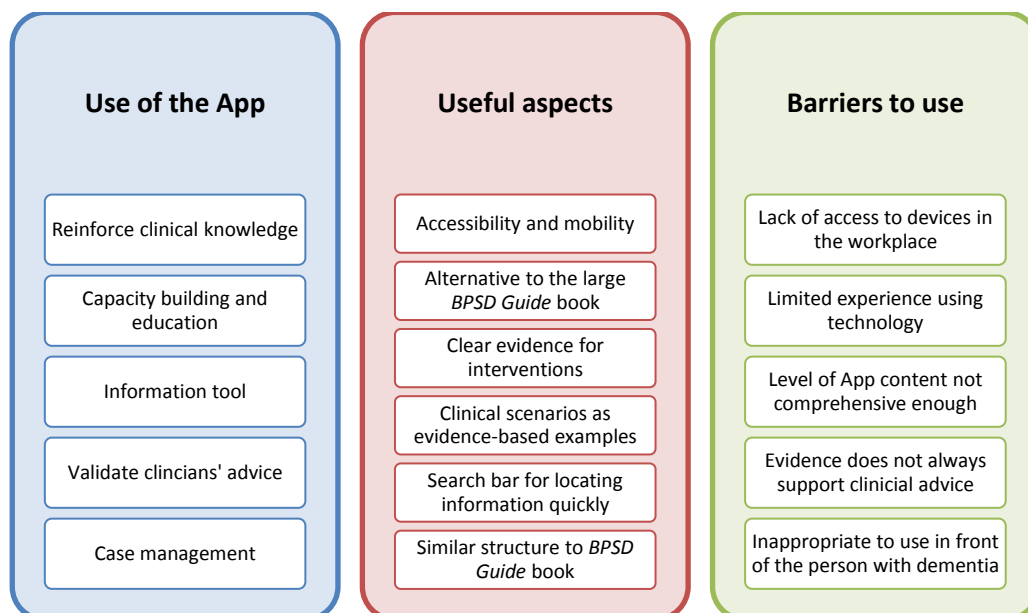


Figure 2 Summary of clinicians' experiences using the App

Based on their experience of using the App, clinicians suggested a range of modifications and additional features that could enhance the usefulness of the App and its capacity to effectively support their clinical practice. The suggested changes are summarised in table 3.

Table 3 Suggestions for further development of the App

<b>Additional components</b>	<ul style="list-style-type: none"> <li>• Capacity to develop an individual client profile</li> <li>• Web links to a pdf/online version of the <i>BPSD Guide</i></li> <li>• Freehand notes pages</li> <li>• Capacity to generate an email</li> <li>• Capacity to generate printable summary of notes</li> </ul>
<b>Content changes</b>	<ul style="list-style-type: none"> <li>• Include assessment tools or links to tools</li> <li>• Clarify between BPSD and resisting care</li> <li>• More evidence for interventions</li> </ul>

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	<ul style="list-style-type: none"> <li>• Provide contact numbers for services</li> <li>• Further emphasise pain and delirium</li> <li>• More information about the environment (separate section)</li> <li>• Simplify the interventions section</li> <li>• Increase links to other resources, websites</li> <li>• Reduce repetitive content</li> <li>• Additional content, more definitions</li> <li>• Summary page of key considerations for each BPSD</li> </ul>
<b>Format changes</b>	<ul style="list-style-type: none"> <li>• Drop down sections</li> <li>• Increase font size</li> <li>• Clearer definitions</li> <li>• Less linear navigation</li> <li>• Flexible screen orientation</li> <li>• Include scroll bar</li> <li>• Expand search function</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>• Translate into other languages</li> <li>• Provide training on how to use the App</li> <li>• Update content in the future</li> </ul>

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## 4. Conclusion and recommendations

The limited availability of Apps to support clinicians in the management of BPSD suggests that little is known with regard to their effectiveness. Currently no standards exist for the control of the content of Apps with the potential to be used in clinical settings for people with dementia. Ethical, privacy and policy issues remain largely untested in this area. This evaluation has captured a representative sample of the overall experience of clinicians across Australia in using the *BPSD Guide App*. Clinicians working in services operating under different models, physical environments and auspicing organisations, from a range of disciplines were consulted.

Findings from this study demonstrate the effectiveness of the *BPSD Guide App* to support clinicians in their role of assisting those caring for persons with dementia, who present with BPSD. Specifically, results indicate clinicians' experience of using the App in the field and the capacity of the App to guide clinical practice by providing ready access to information. Usage over time indicated a steady increase in uptake of the App worldwide and in Australia.

Overall, clinicians indicated that the App was an effective tool to guide their clinical practice when in the field and to help them in supporting others caring for people with BPSD. Clinicians' individual confidence with, and access to, the technology impacted on their experiences of using the App. However, the portability and simple format of the App as well as its consistency with the hard copy *BPSD Guides* reportedly increased its utility. Access to technology and the internet varied between and within regions of each State and Territory and this was reflected in the quantitative and qualitative findings.

This study found little or no direct impact on people with dementia as clinicians reportedly did not use the App in face to face situations. Increased access to evidence based information, via additional resources in the form of Apps, however provides further opportunities to inform those providing care. Improved identification and management of BPSD, by those seeking information in App format will potentially benefit people with dementia.

Clinicians acknowledged barriers they experienced in using the App in their workplace, particularly issues related to access and familiarity with the technology. Suggestions

provided for an updated version of the *BPSD Guide* App include a more comprehensive design and format to enhance its capacity to support clinicians. Outcomes of this evaluation will help to inform future development and dissemination of related Apps to clinicians assisting in the management of BPSD.

Electronic technologies are increasingly becoming part of dementia care and clinicians will progressively become more experienced and familiar with this technology. The steady increase in App usage throughout the evaluation period suggests that uptake may continue to increase as more clinicians become aware of the App. Hand held devices and App technology will likely become more accessible in the workplace in time. It is important to ensure the content of these electronic resources is evidence based and presented in a manner that supports clinicians.

## 5. References

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