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Co-occurring depression and alcohol misuse is under-identified in General Practice: A cross-sectional study

Authors: Ms Breanne Hobden^{1,2}, Dr Jamie Bryant^{1,2}, Laureate Professor Rob Sanson-Fisher^{1,2}, Dr Christopher Oldmeadow^{3,4}, Dr Mariko Carey^{1,2}

- 1. Health Behaviour Research Group. HMRI Building, University of Newcastle, New South Wales 2308, Australia
- Priority Research Centre in Health Behaviour and Hunter Medical Research Institute. HMRI Building, University of Newcastle, New South Wales 2308, Australia
- 3. Public Health Stream, Hunter Medical Research Institute. HMRI Building, New South Wales 2308, Australia
- 4. Centre for Clinical Epidemiology and Biostatistics, University of Newcastle. HMRI Building, University of Newcastle, New South Wales 2308, Australia

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Corresponding author:

Ms Breanne Hobden, Health Behaviour Research Group, Priority Research Centre for Health Behaviour, University of Newcastle, CALLAGHAN NSW 2308, Australia Email: Bree.Hobden@newcastle.edu.au

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Abstract

Depression and alcohol misuse are common co-occurring conditions. This study aimed to determine the accuracy of General Practitioner (GP) identification of depression and alcohol misuse. Participants from 12 Australian general practices reported demographic and health risk behaviour data. GPs were asked to indicate the presence or absence of six health risk factors for individual patients. Accuracy of GP identification was low at 21%. Those with severe alcohol misuse, no chronic diseases and lower education levels were more likely to be identified. Routine screening prior to patient appointments may be a simple and efficient way to increase identification rates.

Key Words: Depression, alcohol drinking, general practice, dual diagnosis, health care systems.

Introduction

General Practitioners (GPs) play a pivotal role in mental health screening and management.

In Australia, GPs are the primary point of contact for those experiencing mental health problems and psychiatric comorbidities (Australian Bureau of Statistics, 2007). National surveys have indicated approximately 25-28% of those with a mental health condition will consult with a GP about their mental health (Australian Bureau of Statistics, 2010; Parslow et al., 2011). While this rate is low, it is also estimated that 80% of those with a mental health condition have attended a GP consultation for other matters (Parslow et al., 2011). Assessing general practice patients for mental health conditions could help identify individuals with these conditions and promote treatment.

Individuals with co-occurring depression and alcohol misuse are frequent healthcare users.

The term "alcohol misuse" has been used previously to encompass consuming alcohol at risky, harmful or hazardous levels or a DSM-IV alcohol use disorder (Bradley et al., 2007). All alcohol-related disorders will be referred to as alcohol misuse in the current article. Depression and alcohol misuse frequently co-occur among those with mental health disorders (Conner et al., 2009; Sullivan et al., 2005). An Australian survey found that half of those with comorbid alcohol misuse and mental health problems had a depressive disorder (Burns and Teesson, 2002). These individuals had a greater number of days out of working role and higher disability when compared to those without a comorbid disorder (Burns and Teesson, 2002). Depression has also been shown to be the greatest predictor of suicide attempts in those who misuse alcohol (Preuss et al., 2002). As a consequence, those with co-occurring depression and alcohol misuse are frequent users of health care services (Grothues et al., 2008; Burns et al., 2005). There is potential to reduce this burden through targeting this group for intervention and treatment. Identification of co-occurring depression and alcohol misuse is the critical first step to ensuring the provision of adequate care.

Limited research has explored the identification of depression and alcohol misuse by GPs.

GPs have several roles in managing patients with co-occurring conditions, including: early detection, brief intervention, care co-ordination and follow-up (McCabe and Holmwood, 2002). Previous research has demonstrated that GP identification of both depression (Mitchell et al., 2009; Carey et al., 2014) and alcohol misuse (Paul et al., 2014) alone is low; however, little research has examined how well GPs identify these conditions when they co-occur. Davenport et al. found Australian general practice patients who self-reported both a substance misuse and a mental health condition were more likely to be considered at risk for depression or anxiety by their GP (Davenport et al., 2001). Marshall et al. (2004) also examined GP detection of depression, anxiety and substance abuse. While 41% of GPs reported screening their patients for two or more of these conditions, this was not compared to a standardised measure, so the accuracy of the GPs detection is unclear. To date no further research has compared patient selfreport to GP identification for dual disorders, and no research has examined GP identification of co-occurring depression and alcohol misuse. While greater severity of depression has been demonstrated to increase likelihood of identification by GPs (Thompson et al., 2001; Nuyen et al., 2005), there is currently a lack of research examining the impact of alcohol severity on detection rates and how this influences those with co-occurring conditions. It is possible that individuals with higher levels of alcohol misuse are more likely to be detected by their GP as a result of exhibiting greater alcohol misuse symptoms (Davenport et al., 2001).

Aims

This study aimed to determine the:

1. Accuracy (sensitivity, specificity, negative predictive value and positive predictive value) of GP identification of co-occurring depression and alcohol misuse compared to patient self-report;

- 2. Impact of alcohol misuse severity on identification rates; and
- 3. Characteristics associated with higher accuracy of GP identification.

Method

Design and setting

The Medical Directory of Australia database and the online "yellow pages" directory were used to generate a list of general practices in three Australian cities. GPs were randomly approached until four practices were recruited from each area. Eligible practices had two or more full time consenting GPs. Further details on the recruitment of practices are available elsewhere (Yoong et al., 2012).

Participants

Participating patients were over 18 years, able to complete an English survey and able to give informed consent. Ineligible patients were those attending a nursing or allied health appointment.

Procedure

Patients attending the clinic for an appointment were recruited by a research assistant in waiting rooms and asked to complete a survey on a touch-screen computer tablet. Survey questions were focussed on patient health risk factors and averaged 12 minutes in length. Gender was recorded for eligible non-consenters. Each consenting GP was provided with a single page checklist for a consecutive subsample of patients. The checklist specified six health risks and GPs were asked to indicate the presence or absence of each health risk. The name and date of birth of each participating patient was collected by the touch-screen computer survey and listed the GP checklist to enable linkage of data. GPs completed the checklists during the appointment, after the appointment or at the end of the day, depending on their preference. GPs were not restricted in their use of screening tools of clinical notes when completing the survey.

Patient self-report measures

Patient demographics Patients were asked to self-report their gender, age, education level, postcode, Aboriginal or Torres Strait Islander origin, private health insurance coverage, possession of a concession card, number of chronic diseases, number of GP visits in the past 12 months and whether they had attended this clinic previously.

Alcohol use was assessed using a modified version of the AUDIT-C. This three item measure is a reliable and accurate indicator of risky alcohol consumption in general practice (Bradley et al., 2007). The questions administered to participants have been published elsewhere (Paul et al., 2014).

Question three was altered from the original AUDIT-C which specifies "6 or more drinks" to stating "4 or more drinks". This coincides with current National Health and Medical Research Council guidelines in Australia (National Health and Medical Research Council, 2001).

Depression was assessed using the Patient Health Questionnaire (PHQ-9), a commonly used screening tool for depression in general practice (Arroll et al., 2010; Gilbody et al., 2007) with sound psychometric properties (Kroenke et al., 2001). This questionnaire asked patients to indicate if they have been bothered by a list of specified feelings over the previous two weeks. Each item is related to a symptom of depression, including: feelings of sadness, diminished pleasure in activities, significant unintentional weight loss or gain, insomnia or sleeping too much, agitation or psychomotor retardation, fatigue or loss of energy, feelings of worthlessness or guilt, diminished ability to concentrate and suicidal ideation. The response options were: "Not at all", "Several Days", "More than half the days" or "Almost every day".

GP assessment

GPs were asked to complete a checklist covering smoking status, overweight or obesity, clinical depression, risky alcohol consumption and inadequate exercise for 35 of their patients. The response option for each risk factor was 'yes' 'no' or 'unsure'. There were also questions pertaining to whether the patient was up to date with a number of screening tests (i.e. mammogram, bowel cancer, blood sugar). A cover page was included for each checklist defining the health risks.

Data analysis

Participant responses for the AUDIT-C were scored on a scale of 0-4 with a maximum possible score of 12. Scores of 4 or more indicated alcohol misuse. Those who scored 0-3 were deemed not at risk of alcohol misuse. Scores were also categorised into three different levels of alcohol misuse utilised previously to classify drinking levels (Kinder et al., 2009; Williams et al., 2010) : mild misuse (scores of 4-5), moderate misuse (scores of 6-7) and severe or very severe misuse (scores from 8-12). The severe and very severe categories were collapsed due to low expected counts. No distinction was made for alcohol misuse based on gender as current Australian guidelines do not differentiate between male and female consumption levels (National Health and Medical Research Council, 2001).

The PHQ-9 tool is scored on a 27 point scale with scores from 1-9 indicating minimal or mild depression and score of ≥ 10 as moderate to severe depression. A score of ≥ 10 was used to indicate depression. This score has previously shown to be comparable to professional mental health assessment of major depression (sensitivity = 88%, specificity = 88%) (Gilbody et al., 2007).

To determine the socio-economic conditions of the geographic region of the participants, a Socio-Economic Indexes for Areas (SEIFA) score was calculated. A score of 6 or less was used to indicate economic disadvantage while a score of 6 or greater indicated economic advantage.

Counts and percentages for all GP and patient demographic variables were calculated. Frequencies of patient depression against alcohol use, along with estimates of sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV) of GP identification of both conditions were performed. Sensitivity refers to the ability of the GP to identify both conditions among those who self-reported both conditions. Specificity refers to the ability of the GP to identify when neither condition is present among those who self-reported neither condition. PPV is the percentage of patients who have been identified by their GP as having both conditions where both conditions are present. NPV is the percentage of patients who have been identified by their GP as having neither condition where neither condition is present. The 95% confidence intervals of all estimates were adjusted for clustering by GP practice through using the robust variance estimator. GP identification of depression and risky alcohol (mild to severe misuse) was used as the outcome in a logistic regression. Crude odds ratios with 95% CIs and p-values for the association of the outcome with GP and patient demographics were obtained. No adjusted models are given due to the low numbers in the outcome. All models use the robust variance estimator to adjust for GP clustering by practice.

Results

General practice and GP characteristics

Of the 48 practices approached, 12 consented (25%). A total of 50 GPs participated in the health risk checklist. The majority of GPs were male (62%, n=31), with 24% (n=12) aged from 25-44, 38% aged 45-54 (n=19) and 38% aged 55+ (n=19). These characteristics are comparable to the gender and age of GPs reported in the Bettering the

Evaluation and Care of Health (BEACH) study, a National study reviewing activities of Australian General Practice (Britt and Miller, 2013). Years spent in general practice varied from less than 5 years (56%, n=28), 6-19 years (18%, n=9) and 20+ years (26%, n=13). Sessions per week also varied from 5 or less (60%, n=30), 5.5 -10 sessions (38%, n=19) and more than 10 (2%, n=1).

Patient characteristics

GP checklists were completed for 1,720 patients. After excluding incomplete data from GPs or patients on depression or alcohol misuse and checklists where GPs provided an 'unsure' rating, matched data was available for 1,306 patients. Patient demographic characteristics can be found in Table 1. The majority of patients were female (60%) and were aged from 45-64 (35%). Patient characteristics are similar to those in the BEACH study with a slight under representation of people of Aboriginal or Torres Strait Islander origin and those with concession cards (Britt and Miller, 2013).

<<INSERT TABLE 1 HERE>>

GP identification of co-occurring depression and alcohol misuse

A total of 96 (7.4%) patients self-reported both depression and alcohol misuse. Sensitivity of GP identification for both conditions was 21% (95% CI = 12, 32). Specificity of GP identification for neither conditions was 98% (95% CI = 96, 100). The PPV and NPV were 51% (95% CI = 28, 74) and 94% (95% CI = 91, 96), respectively.

GP identification of both depression and alcohol misuse was highest among severe or very severe alcohol misusers (43%) (Table 2). Moderate misusers were identified for both depression and alcohol misuse in 34% of cases and for mild misusers only 2% were identified for both conditions. Identification of depression alone decreased as alcohol misuse increased with mild (41%), moderate (31%) and severe/very severe (14%) misusers. Identification of alcohol only was similar between mild (9%) and moderate misusers (7%) and increased in severe/very severe misusers (19%). Mild misusers were most commonly misclassified by GPs as having neither condition (48%). Overall for individuals with both conditions, depression alone (32%) was more likely to

be identified than alcohol misuse alone (10%) or both conditions (21%). The only category that was more common than identification of depression alone was identifying neither condition (36%).

<<INSERT TABLE 2 HERE>>

GP and patient characteristics associated with accuracy of *GP* identification of both conditions

GP's gender and age were not associated with accurate identification. Years in general practice and sessions per week could not be modelled due to low counts. Patients were significantly less likely to be identified by GPs as having both depression and alcohol misuse if they reported more chronic diseases (OR = 0.31, 95% CI = 0.09, 1.03, P=0.0319) and higher education (high school and below and other [ref]; Technical Certificate/Diploma: OR = 0.59 [CI = 0.18, 1.95]; University/Post Grad: OR = 0.38 [CI = 0.15, 0.93], P=0.0396) (Table 3). There was some evidence that patients gender was associated with accurate detection, where males were more likely to be detected, but this did not reach statistical significance (OR=0.41 [CI = 0.13, 1.30], P=0.09).

<<INSERT TABLE 3 HERE>>

Discussion

This study is one of the first to examine GP identification of co-occurring depression and alcohol misuse in a large sample of general practice patients.

Accuracy of GP identification

The low sensitivity and PPV indicates that GPs did not identify a large proportion of those with co-occurring alcohol misuse and depression, while high specificity and NPV demonstrates GPs accurately identified those who did not have these conditions. To the

author's knowledge, there is no other research examining the sensitivity, specificity and the predictive values for co-occurring conditions. These findings, however, concur with a meta-analysis of GPs accuracy in diagnosing depression in which GPs were found to miss a large number of depressed patients but performed well in identifying non-depressed patients (Mitchell et al., 2009).

Severity of alcohol misuse

Identification of co-occurring depression and alcohol misuse was highest amongst those with severe/very severe misuse (43%). Both conditions for this group were more commonly identified than either condition alone (33%) or neither condition (24%). Although caution is warranted given small numbers, GP identification of both conditions among the moderate (34%) and mild (2%) misuse groups demonstrated greater inaccuracy. Severe alcohol misusers were identified more often than mild or moderate misusers; however, less than half of those identified through self-report were identified by their GP and almost a quarter of were identified as having neither condition. When examining the detection of single conditions, a trade-off effect seemed to emerge. Increased alcohol misuse severity demonstrated an increase in alcohol identification but a decrease in depression identification. The small numbers and the overlapping confidence intervals indicate this finding may not be so clear cut, never the less, this finding could also be a result of competing demands on GPs time and attention. Previous research has demonstrated depression severity to impact GP identification (Nuyen et al., 2005; Thompson et al., 2001), likewise the current study found severe/very severe alcohol misusers also showed higher rates of identification by GPs for both alcohol misuse alone and alcohol misuse with depression. As patients presenting to GPs often have less severe mental health conditions (McCabe and Holmwood, 2002), routine screening would be helpful for detecting lower levels of alcohol misuse which may be less obvious to GPs. In addition, screening depressed patients for alcohol misuse would help to increase identification of patients with a cooccurring disorder, as depression was more commonly identified.

Predictors of accurate identification of both alcohol misuse and depression by GPs

The presence of one or more chronic disease/s was found to reduce the likelihood of GP identification of both depression and alcohol misuse. Previous research has found the opposite of this where patients with a physical condition were more likely to have their

mental health condition identified by GPs (Borowsky et al., 2000). This was attributed to greater frequency of visits, interestingly the number of GP visits did not impact identification rates in the current study. A possible cause for this finding may be due to competing demands on the GPs time, a consistently reported barrier to effectively treating patients (Young and Ward, 2001; Presseau et al., 2009) and a patient's physical condition often foreshadows their mental health problems (Rost et al., 2000). Despite this, depression reduces quality of life and (Moussavi et al., 2007; Gallegos-Carrillo et al., 2009)alcohol misuse can also adversely affect those with chronic conditions (Vally et al., 20000; Schabitz and Reinecke, 2011). While dealing with chronic diseases and mental health conditions may be difficult within the scope of a single GP visit, this represents a highly vulnerable patient group. Decreased identification for those with chronic conditions and no impact of increased appointment frequency further supports the need for routine screening.

Lower education levels were significantly associated with increased GP identification. Lower socioeconomic status (SES) has been previously associated with depression (Lorant et al., 2003) and has demonstrated worse symptoms and treatment outcomes for those with alcohol misuse (Adamson et al., 2009). Therefore greater identification among those with a lower education is likely to be a result of GPs targeting those more susceptible. While this is important, the current finding suggests that it has put those with a higher education at risk of being overlooked by their GPs.

Clinical/Healthcare implications

This study highlights significant gaps in care due to under-identification of those with depression and alcohol misuse. When depression and alcohol misuse co-occur, treating either condition alone is less effective than treating both (Baker et al., 2010). A GPs ability to identify co-occurring conditions is therefore critical. However, it has been suggested that both GPs and patients are reluctant to initiate conversations about substance use and mental health (McCabe and Holmwood, 2002; Kates N et al., 1997). A lack of clarity in the treatment guidelines for patients with co-occurring mental health and substance use conditions combined with a lack of time, skills and knowledge about how to approach dual diagnoses has prevented GPs from providing adequate care for these individuals (McCabe and Holmwood, 2002). The lack of existing evidence on optimal screening processes or treatments for those with co-occurring conditions in a general practice setting is likely to contribute to these gaps.

Limitations

The low consent rate from general practices may have impacted the representativeness of the sample; however, GPs were found to have similar characteristics to the National BEACH study (Britt and Miller, 2013) indicating a representative sample. , The use of screening tools may have inaccurately classified some patients resulting in a larger discrepancy between patient self-report and GP identification. While this is possible, these tools were selected due to their high reliability and validity and their common use as a screening tools (Bradley et al., 2007; Gilbody et al., 2007). Furthermore, GPs are reliant on brief screening tools as clinical interviews are not a viable option in this setting. The number of patients with a co-occurring condition in this sample was also relatively small which should be considered when interpreting these findings.

Future Research

Future research could focus on intervention strategies to enhance GP identification and awareness of co-occurring conditions among those with mental health or substance use conditions. Despite the availability of brief screening tools, which have been validated in general practice settings, uptake of these tools appears to be sub-optimal. Policy-makers need to consider the implementation of guidelines which recommend routine screening for mental health or substance use conditions, particularly if one or the other is present (Department of Health and Ageing, 2008). This may also be important to address for those with an existing chronic illness as this is likely to impact identification and treatment. Clear pathways for help-seeking and treatment for this co-occurring disorder also need to be established. Unclear guidelines may be hindering GP assessment if they feel unable to provide adequate care (Department of Health and Ageing, 2008).

Conclusion

Individuals with comorbid depression and alcohol misuse are a highly burdened population. GPs are in an ideal position to provide intervention or referral to these patients; however identification is the first step. This research highlights that this is area requires further developments in research and policy. Enhancement of the processes in place for individuals with co-occurring depression and alcohol misuse can ensure adequate care for this group.

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