Original Article

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Assessment Protocol for Older Adults With Substance Use

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Abstract

This quality improvement project focuses on geriatric syndromes in patients 55 years and older admitted to a Minnesota substance abuse treatment center. Age-specific assessments identify abnormal conditions or geriatric syndromes, which prompt earlier nursing and medical interventions. Nursing staff attended a training program that focused on older adults and the use of the Fulmer SPICES tool for patients over the age of 55 years. Pretest and posttest scores showed a positive change in nursing knowledge with an increase in mean test scores of 10.32 ($SD = 1.763$) to 12.81 ($SD = 1.545$), $p = .000$. A 2-month preimplementation and postimplementation chart audit identified changes in assessment findings using the SPICES tool with an increase in adverse outcomes (1.03%) including sleep problems in 75.4% ($n = 43$) of the target population.

Keywords: Fulmer SPICES tool, geriatric syndromes, older adults, substance abuse

With the explosion of the baby boomer generation, the world's population is aging at an alarming rate. The World Health Organization (2016) estimates that the population over 60 years old will double from 12% to 22% between 2015 and 2050. This surge in population comes with many unique physical, mental, and neurological disorders found in this age group (World Health Organization, 2016). One of the more concerning disorders found within the baby boomer generation, and older adults, is substance abuse.

Substances can include alcohol, illicit drugs, and over-the-counter medications (Kuerbis, Sacco, Blazer, & Moore, 2014; Office of the Surgeon General, U.S. Department of Health and Human Services, 2016). Illicit drugs also include prescribed medications that are used inappropriately. Substances are often psychoactive, have addictive properties, and can be associated with health and psychosocial problems (Office of the Surgeon General, U.S. Department of Health and Human Services, 2016). Although substance abuse is highly problematic in any age group, older adults with complex health problems (often associated with the normal aging process) become more medically complex with substance abuse problems. Approximately 6%–11% of hospital admissions of the estimated 2.5 million older adults with a substance abuse problem are a direct result of these problems (National Council on Alcoholism and Drug Dependence, 2015).

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BACKGROUND

Problem description

Because of the rapidly aging population, it is estimated that, by 2020, 5.7 million people over the age of 50 years will have a substance use disorder (Hazelden Betty Ford Foundation [HBFF], 2015), whereas approximately 4.4 million people aged 50 years or older will be treated for substance abuse (Sahker, Schultz, & Arndt, 2015). As the baby boomer generation (those born between 1946 and 1964) continues to age, it is likely that the substance abuse problem within this group (across genders and all ethnic groups) will continue to grow in proportion (Choi, DiNitto, & Marti, 2014). It is predicted that, by 2020, all baby boomers will be 50 years old, and by 2030, they will be 65 years or older (Kalapatapu & Sullivan, 2010).

Local problem

The current system used for admission assessment at this organization does not account for age-specific issues, including those that may be present in the older adult with substance abuse. With the existing admission process, some key aspects of assessment are potentially overlooked in the older adult population. These key aspects include problems with skin breakdown, falls, incontinence, issues with eating and feeding, functional decline, sleep disturbances, and confusion, which are commonly known as geriatric syndromes (Aronow, Borenstein, Haus, Braunstein, & Bolton, 2014; Fulmer, 2007; Fulmer & Wallace, 2012). These conditions (one or a combination of) are noted to contribute to an increase in longer hospital stays, an increase in death rates, and overall higher costs to care for the patient (Fulmer, 2007). An additional challenge is that nursing staff are not optimally trained for the assessment of the older adult population and some have had little experience in the age-specific assessment that is required of this group.

AVAILABLE KNOWLEDGE

Project problem

Approximately 4.4 million people aged 50 years or older will need substance abuse treatment by 2020 (Sahker et al., 2015),

which is a 300% increase from 1.7 million in 2000–2001 (Koechl, Unger, & Fischer, 2012). In a study by Lakhan et al. (2011) that focused on hospitalized older adults, geriatric syndromes were present in 49.4% of the cases ($N = 577$) before the onset of the new disease-causing hospitalization. Lakhan et al. reported that the most common syndromes were falls, cognitive impairment, and bladder incontinence. The identification of patients at risk for geriatric syndromes early in hospitalization was suggested as a method for initiating specific interventions aimed at the prevention and/or cure of the specific syndrome (Lakhan et al., 2011). This study by Lakhan et al. explained that early identification of geriatric syndromes with prompt mobilization of interventions could potentially improve patient outcomes and decrease geriatric syndrome prevalence.

Clerencia-Sierra et al. (2015) examined the health statuses of older adults ($N = 924$) to determine how existing comorbidities affected the presence or severity of geriatric syndromes. Clerencia-Sierra et al. reported that 99.7% had comorbid problems. The study by Clerencia-Sierra et al. determined that early detection of geriatric syndromes and warning signs of illness potentially prevent further function decline, adverse patient outcomes, and the worsening of the frailty cascade associated with illness and hospitalization.

Inouye, Studenski, Tinetti, and Kuchel (2007) reported that geriatric syndromes are highly prevalent and multifactorial, are often associated with poor clinical outcomes, and require preventative approaches to improve care in the older adult population. Existing comorbidities in combination with the age-related changes in the older adult contribute to geriatric syndromes, which are sensitive predictors of adverse outcomes in hospitalized patients (Anpalahan & Gibson, 2008). The works by Inouye et al. and Anpalahan and Gibson (2008) support the project in that the early assessment for geriatric syndromes will aim to identify problematic areas and will implement focused interventions earlier in the care based on those findings.

Age-related changes support the need for a focused educational program as the complexity and severity of the older adult require training specific to those needs. The unique functional abilities of the older adult, chronic comorbidities, and the normal aging process make assessment an individualized process (Gentleman, 2014). An additional challenge is that nursing staff are not optimally trained for the assessment of the older adult population, and some have had little experience in the age-specific assessment that is required of this group (Institute of Medicine of the National Academies, 2008).

Definition of older adult

In the context of substance abuse, HBFF (2016) reports that the older adult is divided into two age groups: 55–75 years and 75 years or older. Multiple studies and sources used the age of 55 years or older as the definition of older adult in the context of substance abuse (Arndt, Clayton, & Schultz, 2011; Blow et al., 2000; Duncan, Nicholson, White, Bradley, & Bonaguro, 2010; HBFF, 2016); therefore, the age group of 55 years and older was utilized for this project.

RATIONALE

The assessment of the older adult requires knowledge and experience that many nurses do not have (Wendel, Durso, Cayea, Arbaje, & Tanner, 2010). To provide safe and appropriate care, it is important to provide nurses with the knowledge and tools they require, as geriatric syndromes in the older adult population are part of this specialized care, and with this growing population, there will be increased demands from within the healthcare system (Mattos et al., 2015). The educational program will provide the nursing staff with the knowledge needed to perform age-specific assessments using the Fulmer SPICES tool. This increased knowledge and age-appropriate assessment will aim to decrease the potential for adverse outcomes in this population.

The SPICES is a screening tool to assess for six common geriatric syndromes: (a) skin integrity issues, (b) problems with eating/nutrition, (c) incontinence, (d) confusion, (e) evidence of falls, and (f) sleep disturbances (Fulmer, 2007; Fulmer & Wallace, 2012). The SPICES tool has been identified as a reliable and valid tool in all clinical settings and can be used for healthy, ill, or frail older adults (Fulmer & Wallace, 2012). Aronow et al. (2014) reported that the SPICES tool, if used within 24 hours of admission, is valid and predictive of adverse events based on a study of 174 hospitalized older adults ($N = 174$). The outcome of the study showed that 25.9% of the study participants scored at least one item on the SPICES scale, whereas 19.0% scored two. The highest scoring items were confusion (42%), skin integrity (41.4%), and problems with eating or nutrition (45.4%). Aronow et al. relayed that the SPICES tool was effective in identifying at-risk patients for adverse events and that nursing interventions based on the results of this tool might serve to decrease length of stay and to promote interdisciplinary team action (Aronow et al., 2014).

Specific Aims

With the increase in older adults requiring treatment for substance abuse issues, this project focused on increasing nursing staff knowledge related to the older adult population with substance abuse. An age-specific assessment tool was introduced in the current process to identify potential abnormal findings so nursing or medical interventions could be initiated. In addition, this project also aims to improve or augment the current nursing admission process by applying new knowledge of the older adult to the patient encounters.

METHODS

Context

This project took place at a Minnesota treatment center, which attracts people aged 18 years and older from all over the world who seek treatment for their addiction issues. The Medical Services Unit, where this project was implemented, is responsible for admission assessments, acute detoxification, and medical care for patients with acute health problems and substance withdrawal management. The mission of this program was to improve the quality of care in the older adult population with

substance abuse. The program mission statement aligns with that of the agency in that healing and hope are possible when physical needs are met.

The stakeholders for this project included the population of older adults (55 years old and older) who were admitted to the organization for treatment of substance abuse. The facility nursing staff were the primary stakeholders as they received training and education on the care of older adults and utilized the Fulmer SPICES tool during the admission workflow process. The nursing staff were frontline players in this project as they were responsible for data collection with the SPICES tool. This project included two target populations. The nursing staff were the primary target population. The nursing staff consisted of registered nurses and licensed practical nurses. The older adult (aged 55 years and older) patients admitted to the agency for the treatment of substance abuse were the secondary target population. Inclusion and exclusion criteria were applied to the older adult patient population. All employed staff nurses ($N = 53$) were included in this project regardless of seniority, educational background, or work experience. All adults over the age of 55 years admitted to the facility with substance abuse problems regardless of coexisting medical or mental health problems were also included.

Interventions

The project goal was to implement an evidence-based, age-specific assessment protocol for the older adult population with substance abuse. An older-adult-focused educational program was offered to all nursing staff. The goal was for nursing staff to show an increased knowledge in the care of older adults with substance abuse. Nursing staff completed a pretest on existing knowledge as it relates to the older adult population at the beginning of the educational session and a posttest on completion. A retrospective chart audit of all older adult patients admitted during the defined time was conducted to determine the number of adverse outcomes identified before the implementation of the Fulmer SPICES tool (Fulmer, 2007; Fulmer & Wallace, 2012) and nurse educational program. The retrospective chart audit was equivalent to the intervention period of 8 weeks. When the older adult patient was admitted to the facility, the nursing staff utilized the Fulmer SPICES tool (Fulmer, 2007; Fulmer & Wallace, 2012) during the assessment process as directed by the Doctor of Nursing Practice Project Leader.

Measures

A "before-and-after" design was used to compare preintervention and postintervention adverse outcomes. Frequency and percentage methods were used to measure staff participation in the educational program, geriatric syndromes identified on admission, and adverse outcomes.

A paired *t* test was used in this project to determine the change in nursing staff knowledge on completion of the educational program. Paired *t* tests are helpful to determine a postintervention change by using the significance level and other categorical factors to identify the magnitude of change.

Analysis

Quantitative data were obtained with the SPICES assessment tool, pretest and posttest scores, and medical record audits. IBM SPSS (Version 25, 2017) software was used to calculate paired *t* tests measuring the change in knowledge from the nursing educational program. Descriptive statistics were used for frequencies and percentages of geriatric syndromes identified on admission and for adverse outcomes occurring during the patient's stay.

Ethical Considerations

This quality improvement (QI) project maintained a foundation of key ethical standards and protection of all participants. This QI project obtained institutional review board approval from the host organization and the College of St. Scholastica. To ensure the privacy of participants, all assessment forms, tests, and data collection tools were de-identified without demographic information and stored securely. The potential harm to participants was minimal because most activities occurred within the normal standard or scope of care. This project adhered to the guidelines set forth in the American Nurses Association's Code of Ethics for Nurses (Twomey, 2010).

RESULTS

The total number of nursing staff employed during the project implementation was $N = 53$. Of those 53 nurses, 38 (71.6%) attended the educational program. All participants ($N = 53$, 100%) of the educational program completed a pretest and a posttest to evaluate a change in knowledge. The actual change in knowledge was determined by paired *t*-test method. An increase in knowledge was significant with $p = .000$, 95% CI [−3.115, −1.866]. The mean difference between pretest and posttest scores was $M = 2.491$. There was an increase in test scores from a mean of 10.32 ($SD = 1.763$) to 12.81 ($SD = 1.545$), as shown in Table 1.

The data collected with the Fulmer SPICES tool, in conjunction with preintervention chart audit findings, show clinical relevance (see Table 2). The Fulmer SPICES tool identified 113 (235.4% increase) abnormal findings as compared with the preintervention phase, which yielded 48. There were prevalent frequencies of sleep dysfunctions. Data analysis showed a 1.03% increase in adverse outcomes during the postintervention phase. There was a 32.2% increase in sleep dysfunctions, although this could be attributed to expected findings during the substance withdrawal period.

DISCUSSION

Interpretation

The goal of this QI project was to implement an age-specific assessment tool for the older adult with substance abuse problems.

TABLE 1 Paired-Sample Statistics

	Mean	*N*	*SD*	*SEM*
Pretest scores	10.32	53	1.763	.242
Posttest scores	12.81	53	1.545	.212

TABLE 2 Preintervention and Postintervention Data

Domain	Preintervention *N* = 81	Intervention *N* = 57	Percent Change
Admission findings			
Sleep problems	14 (17.2%)	35 (61.4%)	44.2
Eating/nutrition problems	1 (1.2%)	10 (17.5%)	16.3
Confusion	2 (2.4%)	4 (7.0%)	4.6
Incontinence	3 (3.7%)	14 (24.6%)	20.9
Falls	26 (35.8%)	18 (31.6%)	4.2
Skin problems	2 (2.4%)	32 (56.1%)	53.7
Total	48	113	235.4
Adverse outcomes			
Sleep problems	35 (43.2%)	43 (75.4%)	32.2
Falls	1 (1.2%)	1 (1.8%)	0.6
New infections	2 (2.5%)	3 (5.3%)	2.8
Transfer to a higher level of care	12 (14.8%)	7 (12.3%)	2.6
Functional decline	1 (1.2%)	1 (1.8%)	0.6
Mobility decline	2 (2.5%)	2 (3.5%)	1.0
New confusion/mentation change	4 (4.9%)	2 (3.5%)	1.4
New incontinence	2 (2.5%)	2 (3.5%)	1.0
Adverse drug events	3 (3.7%)	3 (5.3%)	1.6
Total adverse outcomes	61	63	1.03

The two interventions implemented in this project were nursing staff education and the use of the Fulmer SPICES tool during the admission process. The use of the Fulmer SPICES tool did identify some prevalent abnormal findings during the time of implementation such as sleep problems. The nursing educational program yielded an increase in knowledge as supported by a significance level of $p = .000$. Although there was not a decrease in adverse outcomes with the use of the Fulmer SPICES tool as originally proposed, specific and common patient problems were identified during the preintervention and postintervention phases of this project. These findings suggest that, with the use of an age-specific assessment tool in the current process, there were significant numbers of abnormal findings identified with the Fulmer SPICES tool. Project data suggested that sleep disturbances were common among the older adult population in preintervention and postintervention findings.

Sleep disturbances The comparison of age-related differences in sleep disturbances highlights the effect that normal aging and comorbid conditions have on sleep. Older adults have a predisposal to sleep disturbances because of biological and psychosocial determinants. The older adult often has sleep difficulties because of the normal aging process, medications, or chronic disease states (Shaver, 2016; Vaz Fragoso & Gill, 2007).

During the early withdrawal period from alcohol, sleep disturbances are reported across all populations; however, the older adults are at a higher risk for the escalation of sleep problems with an acute-on-chronic phenomenon presenting. The magnitude at which substance use causes or contributes to sleep disturbances varies, with sleep problems existing during acute intoxication, withdrawal, or chronic use stages (Garcia & Salloum, 2015).

Evidence supports that alcohol predominates sleep disturbances in the withdrawal phase over other substances and is often used as a sleep aid (Thakkar, Sharma, & Sahota, 2015). Substances identified as contributing to sleep disturbances are alcohol, cannabis, opioids, cocaine, amphetamines, and hallucinogens (Garcia & Salloum, 2015; Magnée, De Weert-van Oene, Wijdeveld, Coenen, & De Jong, 2015), but the severity and duration of sleep problem are highly variable across populations. Acute withdrawal from prescription medications such as benzodiazepines can exacerbate sleep difficulties, although supportive causal evidence is not solid.

Literature supports the premise that sleep disturbances contribute to substance use. However, sleep disorders are also associated with existing or the development of substance use problems. Psychosocial factors and comorbid medical and psychiatric problems contribute to worsening problems in the older adult. It is also important to recognize that the older adult often has sleep difficulties because of the normal aging process, medications, or chronic disease states (Shaver, 2016; Vaz Fragoso & Gill, 2007). It is also important to note that sleep disturbances can also contribute to substance use problems (Garcia & Salloum, 2015) or

cause a relapse into using substances (Garcia & Salloum, 2015; Patrick, 2009; Vandrey, Babson, Herrmann, & Bonn-Miller, 2014).

Limitations

The preintervention group was larger ($N = 81$) than the postintervention group ($N = 57$), although the time frame of 8 weeks was consistent between the two groups. The project design did not allow for equal representation between the groups but did specify the time frame for data collection. It is possible that lower pretest and posttest scores were associated with lower baseline staff knowledge in nonnursing staff who attended the program.

Implications

The nursing educational program contributed to an increase in knowledge, and it is suggested that this program continue for new employees in this organization. The Fulmer SPICES tool identified abnormal findings during the assessment process, and an age-specific tool such as this should be integrated into current practice to provide the best patient-centered care in the older adult population. This project identified sleep problems as a prevalent occurrence in this population, and a focused sleep assessment such as the Pittsburgh Sleep Quality Index (PSQI) would be a beneficial addition to identify sleep quality problems (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989).

Proposed practice improvement Substance use and sleep disorders should be screened in the primary care setting. The PSQI is a reliable and valid tool used across diverse populations and settings to screen for sleep disturbances. The PSQI is used in all age groups including older adults (Bush et al., 2012; Buysse et al., 1989; Smyth, 2012). The PSQI has also been used to identify sleep dysfunctions in populations with substance use disorders and dependence (Hartwell, Pfeifer, McCauley, Moran-Santa Maria, & Back, 2014). Tools to screen for substance use problems should be used as well. The TAPS (tobacco, alcohol, prescription medication, and other substance use) tool is brief and is designed for the primary care setting (McNeely et al., 2016).

Literature shows a bidirectional relationship between sleep disturbances and substance use. The screening for sleep problems may identify areas of concern for substance use, whereas screening for substance use disorders may clarify sleep complaints and initiated appropriate treatment at the primary care level. The Fulmer SPICES tool identifies issues with sleep, with this triggering further assessment of underlying causes such as substance use. The usefulness of the PSQI in older adults, and those with substance use problems, suggests that this tool be incorporated into the primary care setting. Older adults who use alcohol and over-the-counter sleep remedies often do not discuss this with the healthcare provider (Gooneratne et al., 2011). Prompt identification of existing problems, such as sleep, can trigger earlier nursing or medical interventions that are patient and age specific.

CONCLUSIONS

The goal of this QI project was to implement an evidence-based, age-specific assessment protocol for the older adult population with substance abuse. The use of the Fulmer SPICES tool in conjunction with a comprehensive nursing educational program that discussed the normal aging process, risk factors for substance use, and geriatric syndromes were beneficial in supporting the project goal. The increase in knowledge obtained from this educational program potentially strengthened the nursing staff's ability to assess the older adult population in a more comprehensive and systematic manner. The project data showed that some geriatric syndromes were more prevalent than others, with sleep disturbances being the most common. The knowledge gained from this QI project adds to the existing body of literature and gives nursing staff the education needed to provide quality care, while considering age-related variables.

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