The Prevalence of Employed Nurses Identified or Enrolled in Substance Use Monitoring Programs

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Abstract

Background—For over 100 years, nurses' particular work conditions have been anecdotally associated with increases in substance abuse. Reasons include job-related stress and easy access to medications. Current research has suggested that prevalence of nurses with substance use problems is actually similar to, if not less than, that seen in the general population. However, given nurses' proximity to critical patient care, the potential threat to public health, as well as the current shortage of practitioners and problems related to retention, the lack of research on the effectiveness of the two existing treatment protocols (disciplinary and alternative-to-discipline [ATD]) is a pressing issue of concern to the nursing profession.

Objectives—The aims of this study were to estimate the 1-year prevalence of employed nurses requiring an intervention for substance use problems in the United States and the 1-year prevalence of nurses enrolled in substance abuse monitoring programs and to compare the sum total of nurses identified in disciplinary and alternative programs with the general population.

Methods—This was a balanced stratified sampling design study. Measurements included the National Council of State Boards of Nursing 2010 Survey of Regulatory Boards Disciplinary

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Actions on Nurses, the 2009 annual reports of alternative programs, the 2008 National Sample Survey of Registered Nurses, and the 2009 National Survey on Drug Use and Health.

Results—The 2009 1-year prevalence of employed nurses identified with substance use problems in the United States and its territories was 17,085 or 0.51% of the employed nursing population. The 1-year prevalence of nurses newly enrolled in substance abuse monitoring programs in the United States and its territories was 12,060 or 0.36%. Although every National Council of State Boards of Nursing jurisdiction has a disciplinary monitoring program, only 73% ($n = 43$) of these jurisdictions have alternative programs. Despite this, on average, alternative programs had nearly 75% more new enrollees (9,715) when compared with disciplinary programs (2,345). The prevalence of nurses identified with a substance use problem requiring an intervention (and likely treatment) is lower than the prevalence of those who report receiving substance abuse treatment in the general population (0.51% vs. 1.0%).

Conclusions—The ATD programs potentially have a greater impact on protecting the public than disciplinary programs because ATD programs identify and/or enroll more nurses with substance use problems, thereby initially removing more nurses with substance use problems from direct patient care.

Keywords

addiction; alternative-to-discipline; discipline; epidemiology; nurse; substance abuse monitoring programs; substance use problems

Substance use problems by nurses are of critical public health importance because these professionals pose a direct threat to themselves and those in their care. Understanding the scope of the problem is paramount, but it is difficult to estimate the actual number, beyond purely anecdotal evidence (Monroe, Pearson, & Kenaga, 2008). Many estimates have appeared in the literature over the past 50 years, but such reports offer findings that are difficult to document (Wilson & Compton, 2009) or are derived from self-report survey data (Bell, McDonough, Ellison, & Fitzhugh, 1999; Trinkoff, Eaton, & Anthony, 1991; Trinkoff & Storr, 1994).

Considering the paucity of empirical data and the wide variation in estimates of the prevalence of substance use problems found in available research, the primary objectives of this study were to use state boards of nursing discipline and alternative-to-discipline (ATD) information to estimate the 1-year prevalence of employed nurses requiring an intervention for substance use problems and to estimate the 1-year prevalence of employed nurses enrolled in substance use monitoring programs for nurses in the United States. It has been suggested that 1.5% of the nursing workforce is enrolled in substance abuse monitoring programs in any given year (Clark & Farnsworth, 2006), and it has been estimated that 9,000 recovering nurses reenter the workforce each year in the United States (Monroe, Vandoren, Smith, Cole, & Kenaga, 2011). The effectiveness of these programs may be assessed by comparing the prevalence of nurses enrolled in disciplinary programs with those attending ATD programs and then to compare the sum total of nurses identified in disciplinary and ATD programs with a measure in the general population using National Survey on Drug Use and Health (NSDUH) data.

Background

Reports of addiction (persistent compulsive use of a substance known by the user to be harmful; Addiction, n.d.) among nurses first appeared around 1900 (Heise, 2003). Easy access to drugs, work in a critical care specialty (Maher-Brisen, 2007), job-related stress, depression, knowledge of the medications, and the enabling of colleagues (Dunn, 2005) were associated with increased substance use problems among nurses.

Estimates of alcohol and substance use problems among healthcare professionals exist in the literature, but systematic empirical evidence is rare and is usually outdated (Wilson & Compton, 2009). Contemporary researchers have found that the overall prevalence of addiction among healthcare professionals is similar to that seen in the general population (Berry et al., 2003; Bryson & Silverstein, 2008; Dunn, 2005; Trinkoff et al., 1991; Trinkoff & Storr, 1998a; West, 2003). According to the 2009 NSDUH, the prevalence of addiction in the general population was 9% for those older than 25 (U.S. Department of Health and Human Services [DHHS]: Substance Abuse and Mental Health Services Administration [SAMHSA], 2009), which is similar to the 2-10% reported among nurses and physicians (Baldisseri, 2007; Bell et al., 1999; Dunn, 2005; Trinkoff et al., 1991; Trinkoff & Storr, 1998a). According to the same NSDUH survey, over the previous year, the binge drinking rate was 19% among those over the age of 35 (DHHS: SAMHSA, 2009), which is similar to the 16% reported by nurses (Trinkoff & Storr, 1998a). Together, these studies suggest that the rate of substance use problems in nurses is similar to the general population.

In 2010, the National Council of State Boards of Nursing (NCSBN) conducted a survey of its 59 member boards' disciplinary and ATD programs (NCSBN, 2010). On average, 128 nurses per board each year are identified and potentially disciplined for alcohol- and drug-related problems (NCSBN, 2010). Disciplinary procedures are based on *deterrence theory*, and punishment is used as a means to protect the public (Haack & Yocom, 2002). A key component of discipline involves the public reporting of a nurse's substance use problem. Not surprisingly, fear of punishment by a board of nursing keeps many nurses, as well as those who should report them, silent (Lillibridge, Cox, & Cross, 2002; Maher-Brisen, 2007). In contrast, ATD programs are almost always confidential–unless compelled by law—nonpunitive initiatives that serve to both protect the public and assist healthcare workers in recovering from substance use disorders (NCSBN, 2001). A main premise of ATD programs is that, by offering treatment in an atmosphere of support, the public is better protected because ATD programs remove impaired professionals from direct patient care more quickly—from 1 to 120 days (NCSBN, 2001). Fast removal occurs because the investigative process can be streamlined in ATD programs by providing the affected nurse a nonpunitive alternative in lieu of formal discipline (Monroe & Kenaga, 2011). Disciplinary programs, on the other hand, may take up to 2 years to enact (Sullivan, Bissell, & Leffler, 1990), because a board is obligated to gather data, document drug screens, and prepare for a formal hearing. Alternative programs also help serve the public by retaining more nurses in the workforce. One study found that 76% of nurses who completed ATD programs were employed 6 months afterwards compared with 49% of those in disciplinary programs (Haack & Yocom, 2002). Therefore, ATD programs may be key in helping to retain nurses in the workforce. For example, over an 18-month period in 2009–2010, the Pennsylvania Board of Nursing

received 1,314 referrals for its ATD program, and of those, 1,102 (84%) fully cooperated with the ATD program (Pennsylvania Board of Nursing, 2009). Because the ATD paradigm is increasingly the preferred option for nurses requiring treatment and is also gaining international exposure (Hamilton & Taylor, 2011; Monroe et al., 2011; Monroe & Kenaga, 2011), determining the effect of ATD programs on public safety is critical to advancing the science of nursing regulation worldwide. An initial step toward this goal is to determine how many nurses are identified and/or enrolled in the different types of monitoring programs.

Objectives

The primary objectives of this study were to estimate the 1-year prevalence of employed nurses requiring an intervention for substance use problems in the United States and to estimate the 1-year prevalence of nurses enrolled in substance abuse monitoring programs. The next objectives were to compare the prevalence of nurses enrolled in disciplinary programs with those attending ATD programs and to compare the sum total of nurses identified in disciplinary and ATD programs with a measure in the general population using NSDUH data.

Methods

Design

Secondary data analyses of the NCSBN (2010) survey of regulatory boards disciplinary actions on nurses was used to estimate the numbers of nurses both identified by and enrolled in disciplinary monitoring programs. A modified balanced stratified sampling technique (Trinkoff & Storr, 1997) was used in data from 2009 annual reports of ATD programs (NCSBN, 2010) and the 2008 National Sample Survey of Registered Nurses (DHHS: Health Resources and Services Administration [HRSA], 2010) to estimate the numbers of nurses enrolled in ATD programs. The 2009 NSDUH (DHHS: SAMHSA, 2009) was used to provide an estimate of the number of people in the general population receiving alcohol or substance abuse treatment.

Sample and Procedure

Data were used from the NCSBN (2010) disciplinary programs report to determine the average number of nurses identified within 1 year who were disciplined for substance use problems including both legal (alcohol or prescription) and illegal (medications diverted from work sites or street) drugs. Of the 59 member boards sampled, an average of 128 nurses per board each year was identified as having a substance use problem. Moreover, an average of 41 nurses per board each year enrolled in disciplinary monitoring programs.

An average total number of nurses employed in 2008–2009 was used as the denominator in this analysis by using the 2008 National Survey of Registered Nurses (DHHS: HRSA, 2010), a yearly nursing workforce report, and the licensed practical nurse workforce report (U.S. Department of Labor, 2010).

Stratified balanced sampling is a technique that uses an auxiliary variable to attain a probability sample. Auxiliary variables are observed events in a population used to predict

the value for unobserved events. A stratified balanced design allows for even distribution of a study sample in both urban and rural areas, with higher and lower levels of population density. The goal of stratified balanced sampling in the current study is to create a nationally representative sample of nurses who have been identified with a substance use problem.

A five-step process modeled after the work described by Trinkoff and Storr (1997) was used to obtain an estimate of the number of nurses enrolled in ATD programs. The initial step was to determine an adequate auxiliary available measure for use in determining a sampling plan. It was assumed that the absolute numbers of nurses with substance use problems increases with greater population, so the registered nurse (RN) population per state was thought to be an effective "auxiliary variable" for current purposes (Trinkoff & Storr, 1997). The source for that information was the 2008 RN Population Survey (DHHS: HRSA, 2010). Since 1977, the DHHS has used this survey to collect demographic and workforce information on the RN population in the United States. The survey provides a breakdown of the RN population by state or territory (DHHS: SAMHSA, 2009). Subsequently, based on the number of RNs in each state, a table depicting five strata (Table 1) from lowest to highest population density was generated, using natural breaks in the RN state population data to separate each stratum (Trinkoff & Storr, 1997). In other words, Stratum 1 contained states with the least RN density and Stratum 5 contained states with the largest density. The natural breaks in the stratum were (in thousands) 5.0–12.9, 15.4–30.8, 32.1–49.7, 55.1–84.4, and 89.3–277.7. On the basis of those breaks, the number of states in each stratum had to be adjusted slightly into the following: 11, 9, 10, 10, and 11 states (including Washington, DC). Because of the limited availability of ATD data from all jurisdictions, a convenience sample of states with ATD programs was selected from each stratum. Selection of a particular state within a stratum was determined by the presence of a program in the state and availability of the number of nurses newly enrolled in those ATD programs in 2009 either via public Web page or responses from program managers to e-mail queries requesting the information. The final stratified balanced sample used to estimate the number of nurses in ATD programs included one state each in the two lowest RN population density strata, two states each in the middle two Strata 3 and 4, and four states in the most densely populated stratum (Table 1).

Ethical Considerations

The study was granted exempt status from the University of Tennessee Health Science Center because the study did not involve human subjects and used deidentified data.

Results

Estimation of the number of nurses enrolled in ATD programs nationwide in 2009 was based on the weighted average of the number of nurses per stratum enrolled in the sampled states program (Table 2). Across the strata, 1.1 (smallest strata) to 4.5 per 1,000 nurses were estimated to have enrolled in ATD programs, resulting in an estimated weighted average prevalence of 2.9 per 1,000 nurses or 9,715 nurses nationwide.

Using the same estimate of nurses per state as that used for the ATD program estimates, there was an estimated prevalence of 2.2 per 1,000 nurses—or 7,370 nurses identified via the boards nationwide in 2009. Of those nurses identified with a substance use problem, an

estimated average prevalence of 41 nurses per board in the United States and DC were referred to the state disciplinary monitoring program. Using the same estimate of nurses per state as that used for the ATD program estimates, this number results in an estimated prevalence of 0.7 per 1,000 nurses or 2,345 nurses enrolled in disciplinary monitoring programs.

Assuming that the nurses enrolled in ATD programs in 2009 and those identified by disciplinary boards in the same year represent independent samples (i.e., nurses either were disciplined by boards or enrolled in ATD programs, but not both), a combined estimate of the prevalence of nurses with identified substance use problems in that year is 5.1 per 1,000 nurses or 17,085. Moreover, a combined estimate of the prevalence of nurses enrolled in ATD or disciplinary monitoring programs is 3.6 per 1,000 nurses or 12,060. The estimated pooled number of nurses (RNs and licensed practical nurses) employed in the United States in 2008 was 3.35 million (DHHS: HRSA, 2010; U.S. Department of Labor, 2010).

The number of nurses identified is different from the number of nurses enrolled. For example, those identified with a substance use problem may not be eligible to enroll in the monitoring program, may have received license revocation, or possibly surrendered their license to practice. In these instances, the nurse would not be included in the numbers of nurses enrolled in monitoring programs.

As noted above, the 2009 NSDUH (DHHS: HRSA, 2010) was used to compare the rate of substance abuse among nurses requiring an intervention (0.51%) with those who reported having received treatment in the past year for a substance use problem with either alcohol or drugs (1.0%). This finding supports previous reports that nurses generally have a rate of substance use problems similar to, if not less than, the general population (Baldisseri, 2007). However, this comparison is made with caution, because the circumstances in which those in the general population who decided to receive treatment for their substance use problem was not known, nor was the number of nurses who received treatment through other means known. Moreover, the numbers of nurses with substance use problems who were not detected by board or institutional intervention for referral into disciplinary or ATD programs is unknown.

Limitations

There are some limitations to this study. First, secondary data from a state board of nursing survey and annual reports from 10 ATD programs were used, and the rigor of data collection could not be verified. Second, a convenience sample of states with ATD programs was selected. Limitations of convenience samples include recruitment bias and limited generalization. However, convenience samples have been shown to be an appropriate sampling strategy in providing population-based data (Kelly, Riddell, Gidding, Nolan, & Gilbert, 2002), and the stratified balanced design helps to overcome these limitations of convenience. Also, the science of nursing regulation regarding the effectiveness of ATD and disciplinary programs is in its infancy. As such, both communication and documentation of substance use data in the nursing population is not yet streamlined. These limitations further required use of convenience sampling to locate states with data in each stratum. We believe

that our efforts to use balance stratified sampling provide a functional estimate of this critical health problem while describing, for the first time, the effectiveness of the ATD paradigm. Third, there are practical limitations when collecting this type of data; an individual identified with a substance abuse problem might have been referred to an ATD program but did not attend or perhaps pursued another treatment alternative. Therefore, only those individuals enrolled in, and not simply referred to, an ATD program were included. Fourth, each state has specific exclusion criteria that may have prevented a nurse from enrolling in an ATD program. For example, being convicted of a felony, diverting (stealing) medications from work for sale or distribution, and harming a patient are potential reasons for excluding a nurse from participating in an ATD program (Pennsylvania Board of Nursing, 2009). Nurses who are not eligible for admission or fail to comply with ATD program guidelines are referred, at least 70% of the time, to a board of nursing for possible discipline (NCSBN, 2010). Therefore, nurses identified and enrolled in discipline monitoring programs as well as nurses enrolled in ATD programs in the total number of cases identified in 1 year were included. Fifth, the number of employed nurses (3.35 million) was used as the denominator to estimate the percentage of nurses identified with substance use problems. Some nurses who had been disciplined or in an ATD program may not have been employed during that time.

Discussion

Findings from this study have great relevance for the nursing field, both in the United States and worldwide because the ATD paradigm may well become an international standard for protecting patients and rehabilitating skilled healthcare professionals (Monroe & Kenaga, 2011). Using a nonpunitive approach to identify, remove, and treat nurses with substance use problems is important to both safeguarding the public and retaining nurses in the workforce (Monroe & Kenaga, 2011). We found that, on average, ATD programs had 75% more ($n = 9,715$) new nurse enrollees in 2009 than disciplinary programs ($n = 2,345$). As noted above, however, further empirical studies are needed regarding the overall effectiveness of ATD programs at identifying nurses with potential substance use problems (Monroe et al., 2011).

The current findings are in agreement with previous research reporting that prevalence of substance use problems appear no greaterVand possibly lessVthan in the general population, at least as supported by the numbers of individuals entering either disciplinary or ATD programs. The prevalence of nurses identified with substance use problems requiring an intervention (and likely treatment) appears less than the prevalence of people in the general population requiring treatment (0.51% vs. 1.0%). Still, addressing such problems among the nursing population is critical to public health, given their close and critical proximity to patients in a variety of healthcare settings, easy access to an array of medications, and the current shortage of nurses in the field. The current findings also suggest that regulatory boards and agencies of nursing throughout the world can better protect the public and help more nurses by using the ATD paradigm to address substance use problems in nursing professionals and students.

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TABLE 1

U.S. Nurse Population Density Balanced Stratified Sampling Matrix (n = 51)[a]

Population characteristics	Stratum 1	Stratum 2	Stratum 3	Stratum 4	Stratum 5
Number of states including DC	11	9	10	10	11
Range of RNs per state (×1,000)[b]	5.0–12.9	15.4–30.8	32.1–49.7	55.0–84.4	89.3–277.7
Total number of RNs (×1,000)	109.6	187.6	409.5	673.7	1,682.3
Mean number of RNs per state (× 1,000)	9.9	20.8	40.9	67.3	152.9

Note. RN = registered nurse.

[a] Sampling method adapted from Trinkoff and Storr (1997).

[b] From the Registered Nurse Population: Findings from the 2008 National Sample.

TABLE 2

Balance Stratified Sampling Matrix of Alternative-to-Discipline Programs ($n^1 = 10$)[a]

U.S. states per stratum including DC	1	1	2	2	4
	South Dakota $n^2 = 11$	New Mexico $n^2 = 23$	Alabama $n^2 = 130$	Indiana $n^2 = 365$	New York $n = 258$; $n^2 = 87$ (total $n^2 = 345$)[b]
			Oklahoma $n^2 = 141$	Tennessee $n^2 = 237$	Florida $n^2 = 382$
					Pennsylvania $n^2 = 443$
					Texas $n^2 = 290$
ATD enrollees per 1,000 nurses	1.1	1.1	3.3	4.5	2.4

Note. All data were obtained from each respective state board of nursing Web site or by contacting the ATD program directly via e-mail. ATD = alternative-to-discipline; weighted average national ATD per 1,000 nurses = 2.9; n^1 = number of states in final balanced design matrix; n^2 = number of nurses enrolled in ATD program in 2009.

[a] Convenience sample of states with ATD programs selected in each stratum.

[b] New York state has two ATD type programs.