Psychosocial Factors Associated with Substance-Related Disorders; Three Stratified Dimensions

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Abstract
There are three major dimensional aspects with regard to associations between substance-related disorders (SRD) and psychosocial factors. They are religious/spiritual, job-related, and symptomatic (clinical) factors, each of which strongly affects or modifies the quality of life among SRD patients. Those factors construct a stratum in which each factor correlates with the others. The most fundamental factors are religious/spiritual, and based on their sense of value and morality, legal regulations on relevant substances are enforced. Such legal regulations directly stipulate job environments, in other words, social restriction as the second dimension of psychosocial factors among SRD patients. That is, illicit drug use results in dismissals and difficulty in obtaining new jobs. Since unemployment status is strongly associated with SRD, a vicious cycle is formed between SRD and unemployment. Catastrophic events such as suicide often occur as a result of such negative spiral. Due to these social factors related to substances, somatic symptoms, the final signs directly connected to medical treatments and revealed by SRD patients, might be seriously biased. Such somatic symptoms can be regarded as the third dimension of psychosocial factors surrounding SRD. Negative emotions such as stigmas, prejudices, or feelings of shame concerning one’s mental disorder (including SRD) might prevent patients from showing apparent mental symptoms associated with SRD. Because negative emotions possibly arise on the basis of cultural backgrounds, it is important to take into account the effects of such factors when evaluating and studying the associations between somatic symptoms and SRD. The most important issue for the rectification of health inequality among SRD patients is to sweep away discriminations and prejudices against SRD, but this is difficult since such negative emotions are likely to take root in a religious/spiritual context.

Keywords: Substance-related disorders; Somatic symptoms; Job environment; Culture

Substance-related disorders (SRD) are associated with various psychosocial factors. Many clinical and social features are observed in SRD, and the symptoms, related legal regulations, and the substances themselves, are strongly affected by cultural and ethnic specificities [1,2].

For instance, expression patterns of somatic symptoms associated with SRD have clinical importance as phenotypes of SRD. There are five major assumptions that explain the associations between SRD and somatic symptoms. They are associated with withdrawal, comorbid mental disorders, comorbid infectious diseases, intractable functional pain or somatoform disorders, and substance intoxication. Those association patterns are strongly modified by cultural or psychosocial factors, including the relevant welfare and legal systems. In some nations where alcohol drinking is strictly prohibited, people are likely to hesitate to express symptoms related to alcohol dependence/abuse because they have a sense of guilt or stigma against such symptoms. They may reveal other acceptable somatic symptoms instead as proxies. Since mental disorders often accompanied by SRD have similar psychosocial backgrounds, somatic symptoms observed in patients with SRD and other comorbid mental disorders are extremely complicated under the modification of those psychosocial factors.

With regard to the association between SRD and social factors, socioeconomic status plays an important role on the prognosis of SRD patients. In particular, the association between SRD and unemployment status should be discussed in the context that SRD in unemployed people could be a strong risk factor of suicide. Our previous meta-analysis based on psychological autopsy studies showed that the odds ratios of SRD and unemployment status on suicidal risk were 5.2, and 2.7, respectively, with statistical significance [3]. Those findings suggest that SRD and unemployment status adversely affect each other, resulting in a vicious circle leading to suicide.

Legal regulations on substances differ among countries, areas, and states. Such legal regulations are based on cultural, religious, and ethnic diversities of each place. Oftentimes, substances that are legal in some countries are illegal in others. These differences in legal regulations among countries sometimes result in global health inequalities, strongly influencing the relationships between SRD and social factors, including unemployment status. That is, since drug use is strictly prohibited in many countries, such drug use leads directly to dismissal. If many kinds of drugs are prohibited, illicit drug users necessarily increase, leading to an increased number of unemployed persons. On the other hand, strict regulation of harmful substances could be associated with the decrease of adverse health events.

In this article, SRD and its surrounding psychosocial problems are discussed in the context of clinical, social, and spiritual elements. This article is based on a qualitative review of current literature addressing SRD, and psychosocial factors related to the topic.

Identification and Selection of Relevant Literature
By using the PubMed database, combining main keywords related to SRD and psychosocial factors such as “substance-related disorders [MeSH],” “somatic symptoms,” “unemployment,” “employment status,” “job strain,” “job stress,” “poverty,” “infection,” “mental disorders,” “culture,” “legal regulation,” “religion,” “race,” “gender,” and “ethnicity,” we searched for relevant articles in English. In principal, publications...
after 2000 were identified and used to capture current trends and findings. We identified additional papers through the citation of articles found via PubMed.

Substance-related Disorders and Somatic Symptoms

There are five association patterns explaining the relations between SRD and somatic symptoms. Relationships among those patterns as well as their clinical features have been described in detail elsewhere [4].

First, withdrawal symptoms should be noted among the five patterns. They can be observed in patients suffering from drug dependence on alcohol, morphine, and barbiturates [5] as defined by DSM-IV. Withdrawal symptoms mainly include a variety of symptoms related to the autonomic nervous system. It is convenient to clinically classify those symptoms into three categories according to the kinds of substances: daily-absorbed materials clinically used psychotropic agents, and illicit drugs. As described below, expression of those symptoms are strongly affected by cultural or ethnic factors. Second, somatic symptoms in patients with SRD often occur due to comorbid mental disorders such as mood or anxiety disorders that accompany a broad range of inconsistent physical complaints. This also suggests the possibility that milder pre-existing somatic symptoms may be magnified from the combined adverse effects of SRD and other mental disorders. Though relations between somatic symptoms and SRD in the context of comorbid mental disorders have been well reviewed [6], they are actually much more complicated than thought, and should take into consideration other relevant factors. That is, the expression of somatic symptoms caused by comorbid mental disorders is strongly affected by cultural factors. Third, some infectious diseases via blood, such as human immunodeficiency virus (HIV) infection or hepatitis C virus (HCV) infection, display a variety of somatic symptoms which are frequently observed among SRD patients [7,8]. Those infectious diseases among SRD patients are strongly associated with socio-economic status, race, place of residence, and public health policies of the country [9,10]. Fourth, patients who have had chronic somatic symptoms of unknown origin, such as intractable functional pain (chronic pain) or somatoform disorders, are likely to be mentally unstable and to depend on various substances [11,12]. Hence, some SRDs might occur due to vulnerable psychological backgrounds. Lastly, intoxication from those substances can directly cause a cluster of widely varying somatic symptoms (i.e., a toxidrome) [13]. Thus, the mechanism underlying the associations between SRD and somatic symptoms has proven to be extremely complicated. Consequently, it is difficult to determine the clinical significance of somatic symptoms during the diagnostic procedure or treatment of SRD.

However, some somatic symptoms can be useful signs for detecting SRD when patients have feelings of stigma, prejudice or shame against SRD and other mental disorders. Such negative feelings against SRD possibly occur based on cultural or ethnic backgrounds, and are likely to strengthen the combined adverse effects of both job-related stress and SRD on suicidal behaviors, as described below. In such cases, since the patients hesitate to openly express their mental symptoms associated with SRD, they are apt to express some somatic complaints as proxies of their mental conflicts. Stigma or feelings of disgust against mental disorders are considered to be strong for patients with SRD, especially when the substances that they abuse are illicit. Otherwise, even if they have no stigma or hatred for their drug abuse, drug users with an antisocial personality are considered to never reveal their illicit drug use. Only somatic symptoms revealed by patients can be useful cues for detecting SRD in such situations.

In addition, social or cultural environments including religious/spiritual factors must be taken into account when attempting to understand the associations between somatic symptoms and SRD. Many substances related to SRD are under legal regulations which differ among countries and areas. In some areas, certain substances are prohibited for religious reasons. Such social and cultural backgrounds greatly affect people’s psychological states, including a sense of prejudice, stigma, and shame or guilt for using such substances, which might lead to revealing specific kinds of symptoms that form a syndrome. Thus, special caution is needed given that somatic symptoms revealed by SRD patients are likely to be biased.

Substance-related Disorders and Job Environments

Both SRD and unemployment status have been identified as significant risk factors of suicide, which spread from personal to social and environmental factors [3,14]. The former includes various mental disorders as well as personal characteristics, while the latter includes socioeconomic or socio-demographic factors such as house-hold income, employment or marital status. Since apparent behavioral problems or poor job execution caused by SRD may result in immediate dismissal, and since psychological pressure arising from unemployment or job-related stressors encourages those people to indulge in substances, SRD, unemployment status, and stressful job environments are strongly correlated with each other, leading to an increased risk for suicide.

Although an appropriate epidemiological study is needed to confirm whether the combined effects of SRD and unemployment status on suicide risk is synergic or merely additive, as shown in the study of the US Arctic [15], variations in suicide rates exist across regions of Alaska with different majority populations of the Alaska Native cultural group, suggesting that even in an arctic area where amusements and job variations are considered to be poor compared to those in urban areas, suicide rates are affected by cultural background. However, prevention of alcohol-related disorders is considered especially important in such areas to improve the mortality rate [15]. From another point of view, this might suggest that adverse effects of SRD on suicide risk are relatively serious compared to unemployment status in places where optional job variations are scant, while such effects might be modified and more complicated in an urban area where substances, job-related, and cultural factors have wide variations.

Another review regarding socioeconomic status (SES) and smoking [16] suggested that low SES might be associated with a higher smoking rate. Ironically, raising the price of tobacco products has been implicated as the most effective tobacco control intervention among those smokers [16]. Interestingly, a study using a structural equation model demonstrated that job-related stressors result in somatic symptomatology that leads to heavy drinking in men, but not in women [17]. In this study, however, unemployment status was not significantly associated with somatic symptomatology.

The relationship between unemployment and SRD has been reviewed by Henkel in detail [18]. The author arranged several critical issues regarding the association between SRD and unemployment in six categories. According to that review, unemployed people are more likely to be risky alcohol drinkers, and to use illicit drugs. Problematic substance use was reported to be a cause of unemployment, and vice versa [18]. Furthermore, unemployment was reported to increase the risk of relapse after alcohol and drug addiction treatment [18]. In this regard, high rates of injection drug use as well as related infectious diseases have been reported among homeless youths [19].
Although job strain, characterized by low job control and high job demand, was reportedly associated with alcohol dependence in young adults [20], another study conducted in the Finnish working population showed that high job strain and high effort-reward imbalance as global constructs were not associated with heavy drinking [21]. It is important to take into account the ‘job culture,’ which could greatly affect substance-related habits among workers, when interpreting the relations between SRD and job environments. If there is an ‘atmosphere’ in which some kinds of addiction or drug use do not seem strange in the workplace, workers can use such drugs without psychological reluctance. For example, drinking or smoking has been reported to be popular among blue collar workers [22,23].

Job-related factors can be regarded as critical parts of the social system surrounding SRD patients, which includes education, welfare, and medical components. These social systems are stipulated by cultural backbone as described below.

### Substance-related Disorders and Cultures

Psychosocial factors related to SRD are greatly influenced by various cultural backgrounds, existing as SRD-related behaviors, legal regulations, and peoples’ negative emotions against SRD, such as stigma or prejudice. As mentioned above, those factors may determine job environments and the expression patterns of somatic symptoms associated with SRD. Legal regulations, which differ among countries and change over time, are significant factors that can cause health inequalities. Since such regulations differ among areas or countries, the line between ‘legal’ and ‘illicit’ is sometimes obscure, which results in the thriving of harmful substances crossing international borders.

#### Legal regulations

From a social point of view, substances that patients with SRD misuse can be divided into the following two categories: legal and illicit. Almost all clinical characteristics and psychosocial aspects of SRD patients greatly depend on whether their substances are legal or not. As will be described later, illicit drug use includes cases when the means to obtain the drugs are illegal even if the drugs themselves are legal. Legal regulations related to substances are critical since such regulations are directly connected with the social status of SRD patients, including job environments. If it becomes clear that a person uses illicit drugs, he/she would be denied employment.

Misure of the legal category includes the overdose of nonessential grocery items such as nicotine, or alcohol dependence/abuse. Another legal example is with patients who misuse their prescribed or OTC drugs. Obtaining measures as well as substances themselves are legal in such cases. There might be some traits that predispose individuals to misuse legal psychoactive substances. For instance, decision-making impairment combined with non-planning impulsivity has been shown to be serious among alcohol dependence patients [24]. In addition, drinking behavior was reported to be associated with failing to achieve long-term abstinence of benzodiazepines [25]. However, the motives that predispose individuals to such prescribed drug misuse still remain unclear [26-28]. Rigg and Ibanez [29] reported in a study of illicit drug users, as well as methadone maintenance patients and residential drug treatment patients, that ‘to get high,’ ‘to sleep,’ and ‘for anxiety/stress’ are the most common motivations for non-medical prescription drug use.

On the other hand, illicit drug users are more likely to exhibit antisocial characteristics, since their drugs are often obtained criminally. Illicit drug use can be defined as follows: if the substances themselves or the actions related to obtaining them are illegal, such drug use can be regarded as illicit. Personal profiles related to impulse control disorders, such as antisocial, borderline, or aggressive personality, were reported to be frequent among those who use illicit drugs such as amphetamines [30,31]. Furthermore, the spread of the Internet facilitates the common use of such illicit drugs. By simply going online with illicit drug sellers, someone can illegally obtain drugs that actually need a physician’s prescription.

Legal regulations, as mentioned earlier, change over time and somewhat differ among countries or areas, and exist as one of the social factors related to SRD and job environments. Legal regulations of some substances might endanger the job status of SRD patients, since obvious illicit drug use results not only in dismissals, but also leads to difficulties in finding new jobs. It should be kept in mind that legal regulations on substances are greatly affected by a sense of morality based on the religious or spiritual backgrounds of the nation. The legal policy of each country or area is also tightly associated with legal regulation of substances, which is relatively changeable compared to religious or spiritual components. Researchers who specialize in SRD should provide clear evidence to politicians that there are effective interventions for substance-related problems, so that they can select policies that maximize the public good [32].

In a study of drug-dependent women, Haller and Miles [33] reported that childhood emotional and physical abuse survivors were at an increased risk of borderline, masochistic, and avoidant personality disorders, while sexual abuse survivors were twice as likely to be antisocial. As emotional instability might be common among those drug users, stigmatization prevents them from admitting their drug use. Illicit drug use and its associated stigmas were reportedly related to increased feelings of perceived rejection and secrecy among such drug users [34]. Stigmatization may also adversely affect the health of such users by exposing them to chronic stresses such as discrimination, and by acting as a barrier to accessing care [35]. Careful confirmation of the patients’ life history or information from their relatives might be helpful in making a diagnosis of SRD in those illicit drug users. However, their family members might have some personality problems if they were the assailants of such physical, emotional, or sexual abuse. An interventional approach including arbitration is often necessary, since there are limitations to medical approaches for such families.

### Ethnicity and race

Ethnic backgrounds can stipulate the clinical or psychosocial features of patients with SRD. Those factors heavily affect the incidence or prevalence of each SRD, meaning that SRDs need careful attention in the primary care stage, which differs among countries and regions.

For instance, it has been reported that black adolescents with SRD expressed having received less specialty and informal care, and that Latinos with SRD reported having had less informal services compared to non-Latino whites with SRD, although treatments were considered to work well independent of race/ethnicity [36]. Church-based health promotion programs have been successful in addressing racial disparities for several chronic medical conditions including SRD [1]. On the other hand, there are some doubts as to whether even evidence-based SRD treatments are appropriate for ethnic minorities such as American Indians or Alaska Natives, since guidance on how to adapt them to those populations is lacking [37].

‘Walking On,’ a treatment program blending traditional Native American healing with science-based practice, was suggested to be feasible for use in tribal substance abuse treatment programs [38]. People of ethnic minorities who use injected drugs were twice as likely...
to be HIV seropositive than the ethnic majority [39], and large-scale, evidence-based prevention programs therefore need to be implemented in the context of patterns of injected drug use. Furthermore, prescription drug abuse has been reported to be rising among Aboriginal youths, an Australian ethnic minority [40]. According to a study of Baltic countries using various ethnic populations [41], however, being a member of a minority group was not related with poor self-rated health or involvement in risk-taking behaviors related to SRD. As for drinking habits among some ethnic groups with a permissive drinking culture where the harmful effects of alcohol are often looked over, persuading drinkers to realize alcohol's negative potential [42] and enacting measures to screen high risk groups [43] have been considered to be important for the treatment and prevention of alcohol use disorders. In an epidemiologic study conducted in Israel General Hospital [44], those born in the Former Soviet Union, a minor ethnic group, were shown to be at higher risk of alcohol use disorders compared to the other patients.

These findings suggest that ethnic/racial minorities might have a socially 'weak' status, leading them to SRD, sometimes in conjunction with illegal activities such as crime organizations. 'Social weakness' means that since those ethnic/racial minority people often suffer from kinds of unreasonable prejudice or discrimination, they might have a difficulty to obtain jobs or good socio-economic status, which often result in criminal activities. Indeed, it was reported that high spending on methamphetamine/amphetamine was significantly associated with higher earnings from acquisitive crime among police detainees in New Zealand [45]. However, not only is social weakness associated with ethnic/racial minorities, but there are also somewhat specific usages including spiritual reasons that are harmful or protective of SRD, as described below.

Some substances and drinks or foods are ingested daily among specific ethnicities, some of them for religious habits [46]. Those substances often cause a specific type of SRD associated with the ethnic group, and legal regulations against the illicit drugs might not have sufficient effects. For instance, alcohol and methamphetamine use was reported to be a serious concern among American Indians [47]. In a study of Filipino methamphetamine users [48], functional social support was indicated as a preventive factor against SRD relapse. Thus, reinforcement of social capital networks that are inherent to those ethnic minorities might be effective for the prevention of SRD. Furthermore, some genetic characteristics in several ethnic groups have been shown to be associated with drug seeking behaviors [49] or drug dependence [50]. Further research that elucidates genetic backgrounds related to SRD might help in understanding why some specific SRDs are frequent among specific ethnic groups.

As for the emotional factors, stigmas or prejudices against mental disorders including SRD are generally cultural and socio-demographic [51,52]. For instance, it has been suggested that Japanese might harbor relatively strong stigma or prejudice against mental disorders compared to Westerners [53]. In another Japanese study [54], it was reported that feelings of shame in seeking help when distressed were associated with old age, living in a rural area, and viewing suicide as a matter of self-choice. Although stigma or prejudice against SRD can be a deterrent to SRD, those negative emotions also often prevent patients from receiving appropriate medical treatment, leading them to more serious SRD. Among Latinos, it was reported that the associations between problem drinking and both prejudice and unfair treatment could be exacerbated by the presence of other stressors [55]. Stigma was suggested to reduce QOL among those with alcohol dependence, but there is no clear evidence that it exerts racial-ethnic differences in QOL [56]. Relations between stigma/discrimination and SRD have been discussed in the context of SRD patients with related infectious diseases such as HCV or HIV infections [57-60].

Religions

Relations between religions and SRD have been discussed in the context of relations between drinking and religions, since some religions such as Islam strictly prohibit drinking. Many studies have shown religion or spirituality to be one of the important protective factors against alcohol-related disorders [61-65]. These protective or improving effects of religiosity on SRD have been reported to somewhat differ among ethnic groups [66] and between genders [67,68]. Furthermore, these effects were found substantial rather than mediators [64]. Greater lifetime formal religious practices were shown to be associated with improved substance treatment outcomes among adolescents [65]. Those findings suggest that religions can act as psychological inhibition against harmful substances use since 'spirituality,' the core of religions, is in striking contrast to indulging in 'substances.'

In this connection, Haber et al. [69] have found that personality profiles associated with alcoholism were the approximate inverse of the personality profiles of religiosity or spirituality. Hence, they hypothesized that alcohol use would influence one's personality toward disinhibition and emotional instability, or negative affectivity that reinforces alcohol behavior. On the contrary, religiosity/spirituality, in conjunction with other coordinated cognitive-affective factors, was suggested to influence one's personality toward the self-control and emotional stability [69].

Religion/spirituality has also been shown to improve drinking outcomes [70,71], and to be associated with Alcoholics Anonymous membership [72] and smoking cessation [73]. Spiritually modified cognitive–behavioral therapy has been suggested to speed recovery, enhance treatment compliance, prevent treatment non-compliance and relapse, and reduce treatment disparities [74]. Furthermore, trials to integrate traditional spirituality and Western treatment have been conducted for SRD patients from ethnic minorities [75]. In this context, it is critical that leaders of faith communities have the knowledge and skills to cope with problems associated with SRD [76].

From another point of view, these findings suggest the possibility that SRD patients might be regarded as impious, which could lead to discrimination against them. Such discrimination could also result in health inequalities among them since it can be an obstacle to receiving medical care.

Conclusions

There are three different stratified dimensions with regard to SRD and its related psychosocial factors. The most basic dimension is cultural factors, which includes ethnic and religious aspects. The second dimension is social factors, including employment status. The third factor, the one most relevant to clinical setting, is a cluster of specific somatic symptoms, i.e., a syndrome. These factors compose a social stratum in which secondary factors are strongly affected by the primary factors, and vice versa (Figure 1). As shown in the figure 1, (1) all three of the factors, somatic symptoms, job environments, and culture influence each other; (2) religiosity/spirituality influences each of these factors (somatic symptoms, job environment, and culture); (3) all four of these factors influence substance use; (4) substance use, in turn, influences employment; finally (5) change in employment status influences the original three factors (somatic symptoms, job environments, and culture), with
The most fundamental components associated with substance-related disorders (SRD) are religious/spiritual backgrounds. Such cultural foundations regulate job environments and the kinds of substances that can be used. Accordingly, somatic symptoms revealed by SRD patients might be biased since such patients are afraid of losing their jobs. Beside such ‘bottom-up’ influences, it is also plausible that substance use influences job environments and culture is affected by such job-related factors (‘top-down’ effect). Based on these simultaneous relationships, catastrophic accidents such as suicide or murder can sometimes happen.

Figure 1: Stratified relationships among cultural factors, job-related factors, and somatic symptoms associated with substance-related disorders (SRD).

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