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BINGE DRINKING IN RELATION TO SERVICES – BIBLIOMETRIC ANALYSIS OF SCIENTIFIC RESEARCH DIRECTIONS

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ABSTRACT

The article aims to identify scientific research areas within which the subject matter of binge drinking in relation to services is addressed, based on bibliometric data analysis characterising scientific publications indexed by the Scopus database. To achieve the aim, authors use different techniques of the bibliometric analysis with the support of the VOSviewer software. Results of the literature review on binge drinking show that harmful binge drinking behaviour is a subject of intervention services, which are undertaken by governmental and non-governmental institutions. As a theoretical contribution of the research part of the paper, it was proposed to qualify five categories containing the issue of binge drinking in relation to services, such as binge drinking consequences, the culture of alcohol consumption, alcohol versus risky sexual behaviours, alcohol intoxication and binge drinking, and the use of other substance among young people.

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INTRODUCTION

Binge drinking has become one of the most pressing social problems throughout the developed world (e.g. Szmigin et al., 2008; Banister & Piacentini, 2006), attracting much attention from researchers, regulators and legislators. While British authors define binge drinking as a rapid consumption of large quantities of alcohol, especially by young people

(Pratten, 2007), earlier American work more precisely described binge drinking as five or more drinks in one sitting in a two-week period for males (four or more drinks for females) (Wechsler et al., 1994). The quantitative definitions of binge drinking and its conceptualisations vary across countries (Oei Tian & Morawska, 2004). The understanding of binge drinking may also be based on the term “extreme

drinking” proposed by Martinic and Measham (2008), which is culturally-defined and includes intoxication, motivation to get drunk, enjoyment of the process, the desirability of its outcomes, and long-term experience with alcohol enabling an individual to control their drinking. The social marketing perspectives on binge drinking are related to fostering the change of this harmful behaviour in the direction of responsible alcohol consumption. Many government and non-government institutions offer services/programmes of interventions, especially amongst groups of people, who binge drink and who are particularly at risk of binge drinking.

The aim of the article is to identify scientific research areas, within which the subject matter of binge drinking in relation to services is addressed, based on of bibliometric data analysis characterising scientific publications indexed by the Scopus database. In the study, the authors use different techniques of the bibliometric analysis with the support of the VOSviewer software.

1. LITERATURE REVIEW

A significant number of studies investigating excessive alcohol consumption has been carried out over the last three decades (e.g. Wechsler & Nelson, 2008). Binge drinking behaviour has been widely studied by researchers from a variety of disciplines, most notably preventive health, sociology and social marketing. Research has largely focussed on understanding the factors that are related to higher and lower incidences of binge drinking. Research focusing on binge drinking in young people suggests many individual, economic, social, political and organisational factors that contribute to binge drinking (Dowdall & Wechsler, 2002; Wechsler & Nelson, 2008). Locality is another factor that may influence binge drinking being unexplored (Korff, 2003; Siemieniako et al., 2010; Kubacki et al., 2009).

Individual factors that have been widely studied and reported in the literature include demographic (Presley et al., 1996; O'Malley & Johnston, 2002), cultural (Menagi et al., 2008), psychographic (Camatta & Nagoshi, 1995), related behaviours (Kushner & Sher, 1993), and involvement in other activities (Wechsler et al., 2002; Weitzman & Kawachi, 2000).

For example, previous research shows that demographic variables, such as age below 21 (Schulenberg

et al., 2001), male gender (Presley et al., 1996), initial years in the university (Schulenberg et al., 2001), white race (O'Malley & Johnston, 2002), residence on campus (Wechsler et al., 2002; Siemieniako et al., 2010) and lower academic performance (Wechsler et al., 2000) have all been associated with higher levels of binge drinking. Additionally, religiosity has been negatively associated with binge drinking among young people (White et al., 2006). Psychographic factors including trait anxiety (Martsh & Miller, 1997), social anxiety (Tran & Haaga, 2002), self-esteem (Larkins & Sher, 2006), neuroticism (Vicary & Karshin, 2002), thrill, adventure seeking, and impulsivity (Grant, 1998), and risky sexual behaviours (Kubacki & Siemieniako, 2011) have been associated with higher levels of binge drinking. Among related behaviours, alcohol consumption in high school (White et al., 2006) and early onset of first binge drinking (Perkins & Berkowitz, 1991) positively influenced binge drinking among young people. Genetic reasons have been found to have a relationship with drinking among young people. Children of alcoholics reported increased rates of alcohol use (Kushner & Sher, 1993), and alcohol-related problems (Pullen, 1994; Murgraff et al., 1999) as compared to other children. Other factors that lowered the incidence of binge drinking on college campuses include involvement in sports (Wechsler et al., 2002) and volunteering (Weitzman & Kawachi, 2000).

In terms of economic and political factors, studies show that higher taxes on alcohol (Levitt & Porter, 2001) and effective control over its price (Wechsler et al., 2002) lead to reduced consumption. Wechsler and colleagues (2002) also pointed out that strict rules regarding the legal drinking age effectively curb binge drinking among young people. Other restrictions, such as severe penalties imposed on vendors selling alcohol to minors, have a similar effect (Willner et al., 2000). Further evidence indicates that social marketing campaigns can be effective in reducing alcohol abuse amongst young people (Yanovitzky & Stryker, 2001) as well as the number of incidents involving drink driving (Cismaru et al., 2009).

When it comes to organisational factors, schools have been shown to influence student health-related behaviours, particularly in the areas of initiation to alcohol and its heavy use (Bisset et al., 2007).

The importance of locality in alcohol consumption has been identified in previous research. For example, in the collection edited by Martinic and Measham (2008), the authors explored the cultures of

extreme drinking among young people in several different countries. Although country-specific social settings in which alcohol consumption occur are important factors influencing binge drinking, our understanding of location goes beyond national boundaries or physical space. Research on ethnicity and migrant cultures (Korff, 2003) suggests that locality is a form of social construction, which connects three dimensions: space, local knowledge and social organisation.

While a myriad of variables has been extensively studied, research efforts to date have failed to assist in a reduction of a proportion of people who choose to binge drink (Johnston et al., 2006). This reduction might be considered because of services involvement proposed by government or non-government institutions. In limitation of the size of binge drinking behaviours, these services might be considered as interventions. In the systematic literature review of interventions aimed at reducing binge drinking among college students, Bridges and Sharma (2015) recognised 18 interventions, amongst which 14 were found to be effective in changing behaviours. There are also other examples of successes among such interventions (e.g. Dietrich, 2015; Hanewinkel, 2017).

2. RESEARCH METHODS

To achieve the aim of the article, a systematic review of scientific literature was conducted, or more specifically of scientific articles containing references

to the phrases “binge drinking” and “services” and at the same time indexed by the Scopus database. This review consisted of the following stages: (1) selection of the research subject, (2) bibliometric analysis of papers selected as the research subject, (3) frequency analysis of keywords indicated by authors of selected papers, (4) content analysis – examination of connections/links between keywords considered to be most important by the authors of selected articles. The research process is presented in Fig. 1.

In the first stage of the research process, a list of articles was generated, which in its bibliographic description, including the title, keywords and abstract, contain references to two phrases: “binge drinking” and “services”.

The generated list contained 484 records. In the next step of the research process, a bibliometric analysis was made. It included: identification of the number of articles dealing with the analysed topics considering the year of their publication, scientific disciplines, in which the authors of the articles conducted the research, the most popular journals publishing articles related to binge drinking as well as identification the most cited works on binge drinking in the context of services.

The next stage of the research procedure involved the analysis of the most common keywords indicated by the authors of the publications included in the generated list.

In the last stage of research, the results were processed and presented with the help of VOSviewer software which allowed to prepare a map showing

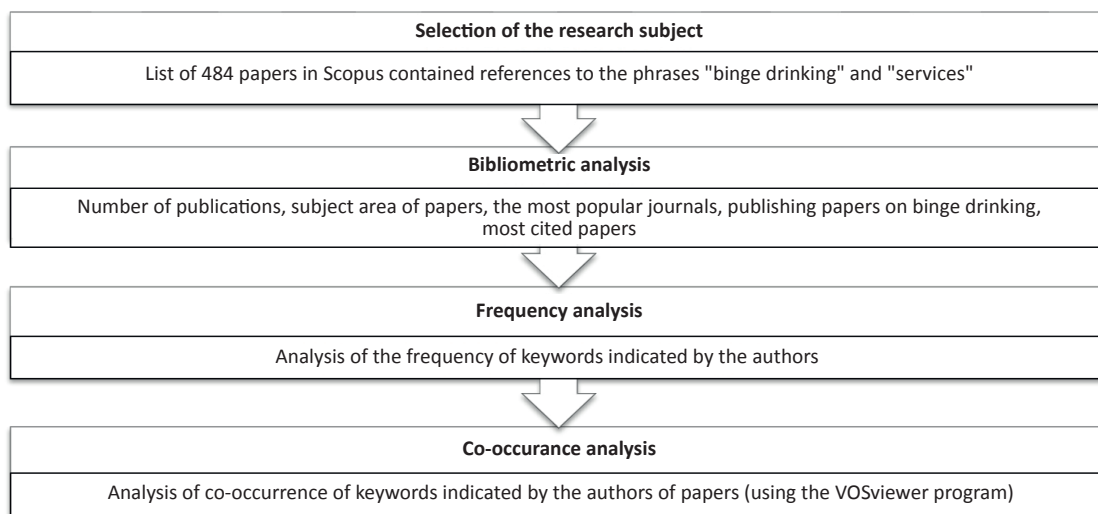


Fig. 1. Stages of the research process

the existing relationships between keywords indicated by authors of articles chosen for the analysis.

Using the VOSviewer software, it was possible to highlight the frequency with which given elements appeared in the network as well as the frequency with which they appeared together. The VOSviewer software helped to combine the analysed set of data into clusters, which allowed to identify the main areas of research in the area of binge drinking in relation to services.

3. RESEARCH RESULTS

The first article on binge drinking in relation to services indexed in the Scopus database was published in 1978; however, a clear increase in the popularity of this topic has been visible since the late 90s of the twentieth century. Most articles referring to binge drinking in the context of services were published in 2013–2015 (53 a year on average). In recent years, there has been a slight decrease in the number of scientific publications referring to this topic (Fig. 2).

The binge drinking issue is mainly undertaken by researchers representing medicine. Nearly 91% of scientific articles dealing with this topic indexed in the Scopus database were written by authors representing this discipline of science. About 16% of works are in the field of social sciences, and 15% in psychology (Fig. 3).

According to the results of analysis, the scientific journals, most often publishing articles dealing with

binge drinking, include: “Alcohol and Alcoholism” (16 scientific articles), Addictive Behaviours (15 articles), “BMC Public Health” (13), “American Journal of Preventive Medicine” (12) and “Journal of Adolescence” (11). These are medical and psychological journals.

The Scopus database clearly distinguishes a group of several articles that are particularly often cited by researchers dealing with binge drinking in relation to services. These are articles published in medical journals and referring to services provided to people struggling with the problem of excessive alcohol consumption. The first place among the most-cited items (nearly 750 citations in the Scopus database) is an article that is a guide for medical doctors. Other most cited articles refer to the social and economic costs of excessive alcohol consumption by people representing various social groups (Tab. 1).

For visualisation, keywords which appeared at least five times within the group of analysed publications are presented as a one-word cloud. The size of the word font indicates the frequency of its appearance among keywords indicated by the authors of the analysed articles. The most frequently appearing keywords indicated by the authors of articles covered by the analysis, in addition to the “binge drinking” filter phrase include: alcohol (68 speeches), adolescents (23), substance use (19), emergency department (17), brief intervention (17), adolescence (13), alcohol drinking (13), mental health (13) and prevention (12). Other keywords appeared ten times or less in the material covered by the analysis (Fig. 4).

Tab. 1. Most cited articles in Scopus related to binge drinking

NO	AUTHOR	TITLE OF PUBLICATION	YEAR OF PUBLICATION	SOURCE TITLE	TIMES CITED
1.	Fleming, M. F., Barry, K. L., Manwell, L. B., Johnson, K., & London, R.	Brief physician advice for problem alcohol drinkers: A randomized controlled trial in community-based primary care practices	1997	<i>Journal of the American Medical Association</i> , 277(13), 1039-1045	746
2.	Bouchery, E. E., Harwood, H. J., Sacks, J. J., Simon, C. J., & Brewer, R. D.	Economic costs of excessive alcohol consumption in the U.S.	2011	<i>American Journal of Preventive Medicine</i> , 41(5), 516-524	398
3.	Jacobson, I. G., Ryan, M. A. K., Hooper, T. I., Wells, T. S., & Bell, N. S.	Alcohol use and alcohol-related problems before and after military combat deployment	2008	<i>Journal of the American Medical Association</i> , 300(6), 663-675	336
4.	Holder, H. D., Gruenewald, P. J., Ponicki, W. R., Gaumont, G., & Roeper, P.	Effect of community-based interventions on high-risk drinking and alcohol-related injuries	2000	<i>Journal of the American Medical Association</i> , 284(18), 2341-2347	260
5.	Mustanski, B., Garofalo, R., Herrick, A., & Donenberg, G.	Psychosocial health problems increase risk for HIV among urban young men who have sex with men: Preliminary evidence of a syndemic in need of attention	2007	<i>Annals of Behavioral Medicine</i> , 34(1), 37-45	254

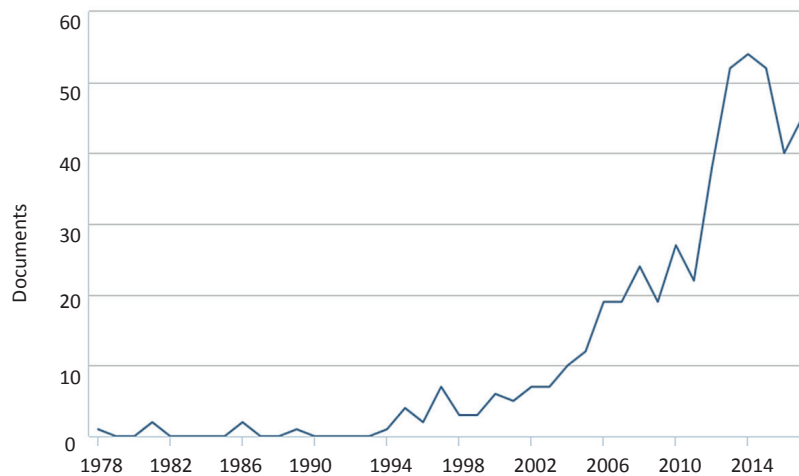


Fig. 2. Number of publications indexed in the Scopus database referring to binge drinking in relation to services

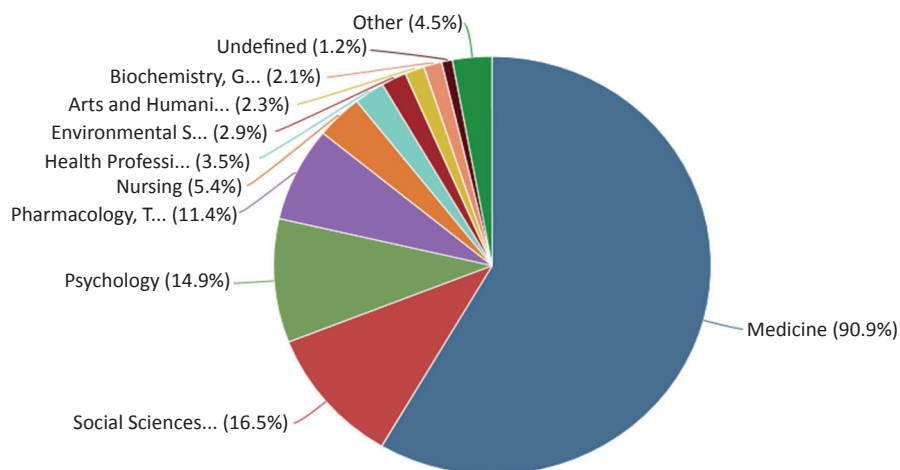


Fig. 3. Most popular subject area of articles indexed in the Scopus database referring to binge drinking in relation to services

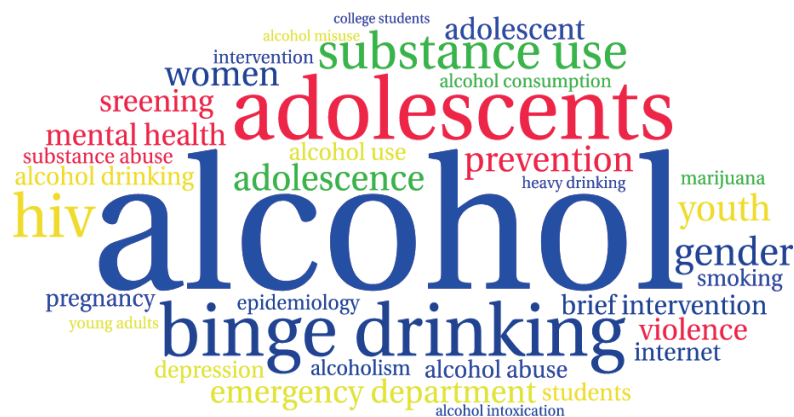


Fig. 4. Key words which come up repeatedly in publications dealing with binge drinking in relation to services indexed in the Scopus database

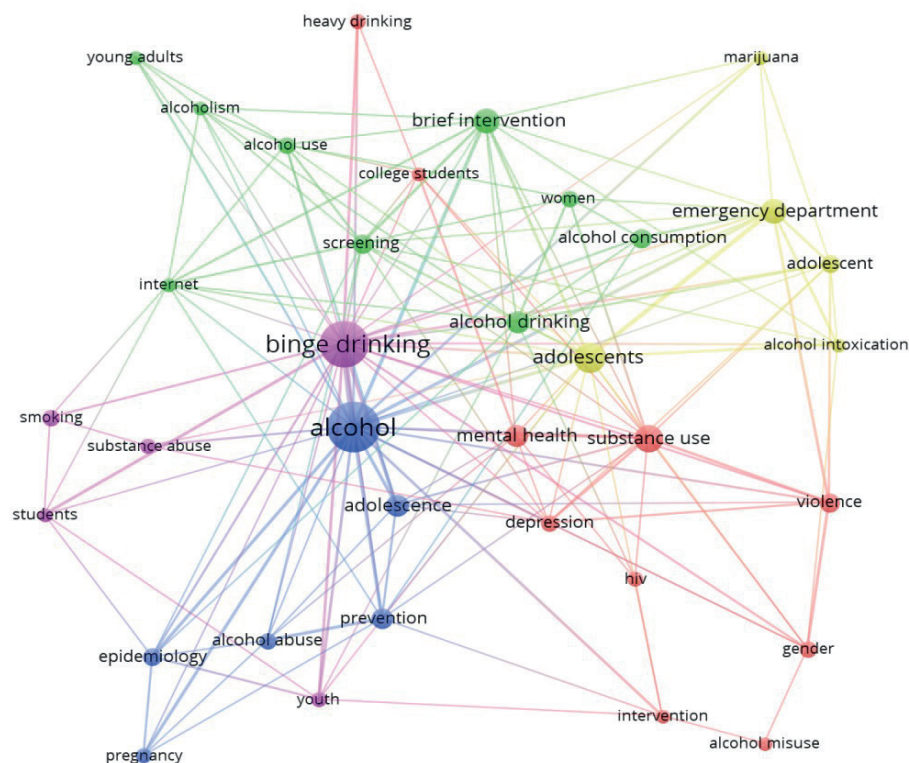


Fig. 5. Map showing the existing relationships between keywords characterising publications dealing with binge drinking in the context of services

In the last stage of the research process, a map presenting relations between keywords indicated by authors was developed. The VOS software allowed to generate the network showing how often each item occurred in the bibliographic descriptions of papers qualified to analysis as well as how often the elements occurred together. The most frequently used words are located in the centre of the map. Each point represents a word, and their sizes as well as the font size of a word or phrase, show the frequency of with that element. Words which have been indicated in most articles displayed the strongest relations with other elements.

VOSviewer also allowed joining elements into related clusters, which were then differentiated using various colours. Members of the same clusters appeared together most frequently which does not preclude them from occurring with other terms (Fig. 5).

The VOSviewer software allowed distinguishing five clusters which, all together, included 35 words/phrases. Proposed cluster names relate to the majority of terms which a given cluster.

Identified in the analysis of co-occurrence of keywords indicated by the authors of articles clusters include:

- Cluster 1. *Binge drinking negative consequences*: alcohol misuse, college students, depression, gender, heavy drinking, HIV, intervention, mental health, substance use, violence;
- Cluster 2. *Alcohol versus risky sexual behaviours*: adolescence, alcohol, alcohol abuse, epidemiology, pregnancy, prevention;
- Cluster 3. *The culture of alcohol consumption*: alcohol consumption, alcohol drinking, alcohol use, alcoholism, brief intervention, Internet, screening, women, young adults;
- Cluster 4. *Binge drinking and other addicted substance abuse among young people*: binge drinking, smoking, students, substance abuse, youth;
- Cluster 5. *Alcohol intoxication*: adolescent, adolescents, alcohol intoxication, emergency department, marijuana.

An influential work on negative consequences of alcohol consumption was published by Wechsler et al. (1994), proposing a 12-item Negative Alcohol Consequences Scale. In the area of binge drinking negative consequences (Cluster 1), two main types of

research can be distinguished: studies employing more holistic approach and trying to investigate a wide range of negative consequences (Cismaru et al., 2008; Park, 2004; Wechsler et al., 1994), and studies focused on in-depth exploration of some specific consequences, such as alcohol addiction (Chrostek-Maj et al., 2005), alcohol related traffic accidents (Murry, 1991), and alcohol influenced sexual behaviour and violence (Hill et al., 2005).

This last one can be categorised within the Cluster 2. Alcohol versus risky sexual behaviours. This area of research on alcohol consumption is narrow, although important. For instance, the research of Young et al. (2005) showed that drinking among female students is not simply about gender equality, but above all emphasises their (hetero)sexuality, attracting positive attention from their male peers, and raising their social position among male drinking groups. Self-control has been identified as an important tool in reducing high-risk drinking (Griffin et al., 2012; Posner & Rothbart, 2000), problems with establishing limits on consumption, and ignorance with respect to internal control mechanisms in the hope of finding sources of external control, pose challenges to social marketers (Siemieniako & Kubacki, 2013). In the works Siemieniako and Kubacki (2013) and Siemieniako and Kubacki (2011), based on projective techniques — collages, risky sexual behaviours appeared as the most important aspect of negative consequences of binge drinking amongst young people. Another important aspect of research on alcohol consumption versus risky sexual behaviours is related to gender identities and women's changing social positions (Lyons & Willott, 2008) and the perception of female bar drinkers (Parks & Scheidt, 2000).

The culture of alcohol consumption (Cluster 3) is a wide area of research, and this is also an area in which researchers analysed the problems qualified to all other clusters, which are distinguished, Fig. 5. Designing research problems, which cover several clusters, can be characterised as a solution of research gap identification. Binge drinking has been widely studied in the last two decades, and there is a considerable body of knowledge relating to drinking motives and negative consequences of binge drinking, much less attention has been directed towards the changes in drinking culture among young women (Wechsler et al., 2002). According to a literature review by Siemieniako and Kubacki (2013), alcohol also used to be considered as a gendered product (Iyer & Debevec, 1986), and gender differences in drinking styles and

the amount of alcohol consumed are still visible in many countries (Dantzer et al., 2006). The changing drinking culture and the convergence of male and female alcohol consumption have been identified by some as increasingly important and relevant with respect to the understanding of young people's drinking (Carpenter et al., 2007).

In their paper, Kubacki et al. (2011) proposed a new approach to defining binge drinking based on cultural aspects of alcohol consumption being grounded on consumer culture theory (CCT). In this approach, binge drinking can be divided into three phases: initiation, indulgence and moderation, which are correlated with age of binge drinkers. This work can be categorised into Cluster 4 (Binge drinking and other addicted substance abuse among young people) because it additionally distinguished type of binge drinking for adolescents, young adults and mature people. It is well proved that binge drinking amongst young people is associated with the abuse of other substances (Kubacki et al., 2011; Bissett et al., 2007).

As part of the works in Cluster 5. Alcohol intoxication, three research trends can be distinguished. The first of these includes articles dedicated to the analysis of psycho-social traits, patterns of drinking, and the circumstances of alcohol consumption by people who came to hospital emergency departments after alcohol intoxication. Important and often cited works that are included in this research trend include Diestelkamp et al. (2015), Wartberg et al. (2016) and Stolle et al. (2010). Some publications relate to research aimed at identifying the state of health and social status of people who become patients of emergency departments after alcohol intoxication after some time from leaving the hospital (Adam et al., 2016). The second stream of research within the Cluster 5 concerns the brief interventions used for people who were hospitalised after alcohol intoxication (D'Onofrio et al., 2012; Diestelkamp et al., 2014; Arnaud et al., 2017). The third trend of research concerns diagnosing the economic costs of binge drinking, which is estimated by including, among others, causes of premature death, increased disease and injury, property damage from fire and motor vehicle crashes, alcohol-related crime and lost productivity (Bouchery et al., 2011).

CONCLUSIONS

The bibliometric analysis of scientific works regarding the issue of binge drinking in relation to word “services” allowed identifying five main clusters, within which there might be the overwhelming qualified majority of the publications covering this issue. It can be proposed to initiate new research projects on binge drinking in relation to services in one of these five main topics, namely, binge drinking consequences, the culture of alcohol consumption, alcohol versus risky sexual behaviours, alcohol intoxication and binge drinking, abuse of other substances among young people.

Short examples of studies within each of the five clusters were presented after cluster identification. As a conclusion, it might be stated that the borders of two clusters make potentially interesting research. Work by Siemieniako and Kubacki (2011) can serve as an example of joining aspects from Cluster 1 (Binge drinking negative consequences) and Cluster 3 (The culture of alcohol consumption). The work presents the student perception of negative consequences of alcohol consumption with deepening exploration of student culture of alcohol consumption. The future direction of research might be broadening of bibliometric analysis through the use of other databases of scientific publications, such as Web of Science, Elsevier, Emerald or EBSCO.

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