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Illegal gambling by adolescent minors has become a major issue in many societies and lottery gambling is often considered a 'gateway' to gambling more generally among this age group. The purpose of this study was to identify the influencing factors that affect retailer compliance concerning the selling of lottery products to minors. The research team received the original data (i) directly from the sales agents of the *Austrian Lotteries* after their responsible gambling training of the retailer in 2014/2015 (Round 1: n=5,032), (ii) directly from a third-party agency carrying out test purchases (i.e., 'mystery shopping') in 2014 (Round 2: n=1,421) and (iii) retailers' responses to their attitudes to youth protection issues (through direct interface with the research team) in 2015 (Round 3: n=4,516). The data from a total of 1,036 participants who had taken part in all three rounds was analyzed in the present study. Results showed that in 13.1% of mystery shopping checks, lottery products were sold to a test purchaser under the age of 16 years. The analysis also showed that the older the test purchaser, the greater the likelihood that a lottery product was be sold. Under-age lottery sales to girls were over three times more prevalent than sales to boys. Finally, the analysis showed that the higher the number of responsible gambling training sessions completed in the past and the more positive the attitude towards mystery shopping, the higher the compliance rate not to sell a lottery product to young mystery shoppers. Recommendations to increase compliance and raise the awareness among retailers are presented.

Keywords: responsible gambling training; adolescent gambling; harm minimization; player protection; mystery shopping; test purchases; youth protection

Introduction

Gambling is a widespread and socially acceptable leisure activity. In most countries, gambling is legal and readily available (Williams, Volberg & Stevens, 2012). Consequently, today's youth are growing up in an environment in which gambling is part of everyday life, and is an activity that many adults engage in (Ariyabuddhiphongs, 2011; St-Pierre & Derevensky, 2016).

For most adults, gambling does not cause any problems, but children and young people constitute a vulnerable group (Calado, Alexandre & Griffiths, 2017; Gosselt, 2011; Gosselt, Neefs, van Hoof & Wagteveld, 2013; Maheshwari & Whyte, 2015; Monaghan & Derevensky, 2008; St-Pierre, Derevensky, Gupta & Martin, 2011; St-Pierre & Derevensky, 2016). A high proportion of children and adolescents start gambling at an early age, between 10 and 12 years old (Gupta & Derevensky, 1998; Wynne, Smith, & Jacobs, 1996), buy lottery tickets and scratchcards themselves – despite the age restrictions (Gosselt et al., 2013; St-Pierre, 2008; Wood & Griffiths, 1998, 2004) and often have their first contact with gambling via lottery products (Delfabbro, King & Griffiths, 2014; Felsher, Derevensky & Gupta, 2004; St-Pierre et al., 2011). A Dutch study (Gosselt et al., 2013) reported a compliance rate of 67%, with this rising to 75% if the salesperson asked for the shopper's age and ID. The study distinguished between off-premise scratchcards, off-premise lottery tickets, on-premise slot machines in casinos, and on-premise slot machines in the catering industry. While ID was requested in 6% of scratchcard purchases, in every case, scratchcards were sold (100%).

One of the best predictors of their lottery purchases is their parents' lottery participation (Wood & Griffiths, 2004). Buying lottery tickets and scratchcards are often seen less as gambling and more as a pastime, a social activity, and/or a distraction from everyday life (Ariyabuddhiphongs, 2011). Empirical evidence shows that adolescents who gamble are more likely to develop gambling problems and that it can affect their health (Calado et al., 2017; Derevensky, Gupta, Dickson & Deguire, 2004; Gosselt et al., 2013; Hayer, 2012; Jacobs, 2004;

Kundu et al., 2013; Lupu & Todirita, 2013; Meyer & Bachmann, 2011; Monaghan & Derevensky, 2008; Stinchfield, 2004; St-Pierre & Derevensky, 2016; St-Pierre et al., 2011).

Effectiveness of training in organizations

Training processes are used in most organizations with the intention of achieving better goals (Bates, 2004; Kirkpatrick, 1970; Rafiq, 2015). Training efforts can generally be viewed as an intervention to increase subject knowledge and skills, to increase motivation, and to improve the interactions between members of the organization (Arthur, Benett, Edens & Bell, 2003). Given the importance of the costs associated with the development and implementation of training sessions and the desired impact of training, it appears central for organizations to have a better understanding of the relationship between the effectiveness of training and the output to daily life business challenges. It can be assumed that the more effective the training, the more meaningful the content is for the participant and greater the benefits can be drawn from what has been learned for day-to-day work.

Since the 1970s, Kirkpatrick's four-level model (1970, 1979, 1996) has been one of the most widely used models for evaluating training (Alliger, Tannenbaum, Bennett Junior, Traver & Shotland, 1997; Arthur et al., 2003). It is an evaluation model that distinguishes between four levels ('Reactions', 'Learning', 'Behavior', and 'Results'), and it is assumed that each successive level of evaluation is based on the information provided by the lower level. However, it should be noted, that numerous studies have documented weak correlations between individuals' knowledge or attitudes and their actual behavior (e.g., Ajzen & Fishbein, 1977; Ajzen, Joyce, Sheikh, & Gilbert, 2011). In the field of alcohol use, responsible beverage service training reduces the sale of alcohol to minors, at least in the short-term (Wagenaar, Toomey & Erickson, 2005b). According to Bates (2004), Kirkpatrick's (1970) four-level model describes training effectiveness too simply because individual and contextual influences are not considered when evaluating the training. Consequently, an exclusive focus on informing and

educating retailers using methods such as training programs for personnel is not necessarily enough to ensure compliance with rules (Gosselt, Van Hoof, Baas & De Jong, 2011; Wagenaar, Toomey & Erickson, 2005a). It is more likely that a wide range of measures help sellers (in the case of the present paper, lottery products) to abide by the rules in their daily practice.

Retailer's responsible gambling training

Ever since the implementation of responsible gambling initiatives became a focus of research, researchers in the gambling field have been calling for minimum requirements for player protection programs (e.g., Blaszczynski, Ladouceur & Shaffer, 2004) and providing advice on how academics can help gambling operators (Griffiths & Wood, 2008). One approach to minimize the negative consequences of excessive gambling is the implementation of staff training in an attempt to reduce the rate of new cases of harm or disorder within their customer base (Blaszczynski et al., 2011; Breen, Buultjens & Hing, 2006; Dufour, Ladouceur & Giroux, 2010; Ladouceur et al., 2004; LaPlante, Gray, LaBrie, Kleschinsky & Shaffer, 2011; Oehler, Banzer, Gruenerbl, Malischnig, Griffiths & Haring, 2017).

Here, retailer's responsible gambling training provided by *Austrian Lotteries* will be described. Mandatory basic responsible training is required before being able to sell lottery tickets. To be allowed to sell lottery products in a retail outlet (i.e., shop or sales office) in Austria, the shop manager (also called head of the retail outlet, sales office manager, retailer, seller, vendor, or distributor) must attend basic training concerning responsible gambling issues (carried out by the responsible sales representative). The training includes: (i) an overview of signs to problem gambling symptoms, (ii) information about counselling and treatment centers in Austria, (iii) information about the legal framework of player protection, (iv) information about mandatory youth protection requirements, and (v) the consequences of non-compliance. Subsequently, each participant in a training program must correctly answer questions about player protection issues. In general, the head of the retail outlet must pass on the content of the

training to their employees to ensure complete compliance with laws and regulations. After successful completion of the training, the sales office may be opened, and lottery products can be sold.

Since 2011, periodic mandatory advanced responsible gambling training for lottery retailers has been carried out via a multiplier model. The multiplier model was implemented in that way that the Austrian Lotteries sales representatives were trained in-house by employees of the *Austrian Lotteries* problem gambling prevention department concerning the content and the exact procedure. These, in turn, passed on their knowledge to the head of the retail outlet. The training of the retailer employees was, as contractually agreed, still left to the retail manager.

Every year, the program is redesigned depending on the needs of the lottery retailers and their employees to implement essential responsible gambling requirements into practice. The needs are deduced from the results of test purchases cycle and the feedback provided after every training event. Alongside basic information about gambling addiction and support services in Austria, the responsible gambling training has a focus on how to deal with problem customers and how to prevent young people buying lottery products (i.e., youth protection requirements). Age and ID checks are repeatedly engaged in using various techniques to ensure compliance with the provisions to protect young people.

This means that retailers are urged to request and check the ID of any customer who looks younger than 23 years even though the minimum age for purchasing lottery products is 16 years (i.e., seven years are added, the “16 + 7 = 23 years” rule; cf. also O’Grady, Asbridge, & Abernathy, 1999; St-Pierre et al., 2011). Participation in the training program is mandatory and all those that complete the training and answer the training questions correctly receive a certificate of completion at the end of the program. In addition to annual face-to-face training, annual online training is also implemented to refresh employees’ knowledge regarding responsible gambling issues.

Factors associated with the seller and the test purchaser

The sale of age-restricted products for reasons of youth protection (e.g., gambling products, tobacco products, and alcoholic beverages) has been empirically investigated internationally (e.g., Gosselt et al., 2013, Radecki, 1994, St-Pierre, 2008, St-Pierre et al., 2011, Warpenius, Holmila & Raitasalo, 2016). Radecki (1994) was one of the first researchers to examine the compliance of youth protection requirements via test purchasing. He surveyed not only the sale of tobacco products to minors, but also the sale of gambling products in Illinois (US). In his survey, a total of 49 establishments (out of 50) sold a lottery product to a girl aged 16 years. US studies conducted concerning the sale of alcohol to minors show different compliance levels (Wagenaar et al., 2005a; Paschall, Grube, Black, Flewelling, Ringwalt & Biglan, 2007).

Subsequent research has shown that, the age and gender of the test purchaser and the vendor may play a role in the rates of complying to age restrictions (Clark, Natanblut, Schmitt, Wolters & Iachan, 2000; Corporate Research Group, 2008; O'Grady et al., 1999; Paschall et al., 2007; Radecki & Zdunich, 1993; St-Pierre, 2008; St-Pierre et al., 2011). For the test purchaser's gender, contradictory findings have been reported. Some research suggests that girls are more successful than boys at illegally acquiring a restricted product (Clark et al., 2000; Forster, Hourigan, & McGovern, 1992; O'Grady et al., 1999; Willner, Hart, Binmore, Cavendish & Dunphy, 2000). On the other hand, Klonoff, Landrine, and Alcaraz (1997) as well as Klonoff and Landrine (2004) found no significant influence of a purchaser's gender on the sale of restricted products.

The effect of the purchaser's age is quite robust. Research consistently shows that older adolescents (but still underage) are more successful than younger adolescents at purchasing alcohol and tobacco (DiFranza, Savageau, & Aisquith, 1996; Forster et al., 1994; Health Canada Tobacco Control Program, 2007). Clark et al. (2000) found that asking for age identification

(ID) is a key factor in compliance with provisions to protect young people. The same result was reported by Gosselt et al. (2013) who reported that the compliance level was significantly higher when the mystery shopper was asked for ID compared to age questioning only. A Canadian study reported a sales rate of 3.6% for age-restricted products (alcohol and lottery products) if the salesperson requested the showing of formal proof of age with an ID card (St-Pierre et al., 2011).

In regard to the gender of the vendor, there are contradictory findings. Some studies report that male vendors are significantly more compliant than female vendors in not selling restricted products to minors (Clark et al., 2000). However, other studies have reported no such gender differences between vendors (Forster et al., 1992; Klonoff & Landrine, 2004, Paschall, 2007). Regarding the effects of the vendor's age on rates of compliance, it has been suggested that vendors of similar age to the purchaser are the most likely to sell restricted products to minors (Health Canada Tobacco Control Program, 2006; McDermott, Scott, & Frintner, 1998).

Factors associated with the outlet characteristics

There is also evidence that the geographic location (e.g., rural, urban) makes a difference in selling age-restricted products such as tobacco to minors (Clark et al., 2000; Landrine, Klonoff & Fritz, 1994). Landrine et. al. (1994) demonstrated that population density has an impact on compliance, and that in rural environments, retailers make sales without considering a person's age because individuals know each other. The population size in rural communities is smaller, and vendors in rural areas tend to be more familiar with community members than vendors in urban districts.

It has also been suggested that store ownership conditions can influence sales behavior. One reason could be is that franchises in some countries must attend mandatory responsible gambling training and education activities, and this measure can be a reason for higher compliance because those outlets which are independently owned may not have to attend

mandatory training (St-Pierre & Derevensky, 2016). Altman et al. (1992) reported that franchises have a more exhaustive mix of formal policies, training programs, and internal incentives to prevent sales to minors compared to independently owned outlets. In Finland, Warpenius, Holmila and Raitasalo (2016) found in a study on compliance concerning the sale of alcohol, cigarettes, and gambling products to young people that there was a difference between privately-operated businesses and those operated by the state-regulated monopoly (i.e., monopoly outlets were significantly more likely to comply with age-limit legislation compared to non-monopoly outlets). In Austria, all retail outlets are independently owned. They differ only between the industry sector (e.g., tobacconist, food retailer, gas station, post office, bank), but all of them must fulfill the same policies and training programs.

Factors associated with individual attitudes to compliance

All retailers of lottery products must be willing and motivated to comply with the rules set by the law or by the lottery concession holder (and in the case of the present study, *Austrian Lotteries*). Research has shown that individual attitudes towards compliance are relevant in implementing legal requirements (Ajzen & Fishbein, 1977; Ajzen, 1991; Ajzen, 2002; Ajzen et al., 2011; Braithwaite, 1995; Fishbein & Ajzen, 2010; Havinga, 2006; St-Pierre, Derevensky, Temcheff & Gupta, 2015b; Webb, Sniehotta & Michie, 2010). Motivation also appears to be related to compliance and/or enforcement of legal requirements (Vogel, 2010).

Fishbein and Ajzen (1975, 2010) have extensively examined the relationship between behaviors and attitudes. The intention to carry out a behavior is determined by two different factors: attitude and subjective norms. Subjective norms consist of the individual's perceptions of social pressure from important others to perform or not perform the behavior. However, a limitation of Fishbein and Ajzen's Theory of Reasoned Action (TRA) is restricted to the prediction of volitional behaviors. Ajzen (1991) further asserts that intentions are influenced by three independent factors: attitudes, subjective norms, and the perceptions of behavioral control.

Ajzen (1991) underlined that both the opportunities and resources available to an individual and/or the perceived difficulty/ease with which a behavior can be performed (i.e., perceived control over the behavior) influence the likelihood of a behavior being successful. According to Ajzen, Brown, and Carvajal (2004), an individual performs a behavior if it is easy to perform, if it is viewed as positive, and if relevant people (i.e., the ‘subjective norm’) view the behavior as positive.

Gambling legislation in Austria and internal compliance restrictions for lottery products

Gambling in Austria is governed by the 620th Federal Act of 28 November 1989 in the Gambling Act. The right to carry out gambling is stated in §3 of the Gambling Act and is reserved to the Austrian state (i.e., a gambling monopoly). The state practices its monopoly concession system with limited and officially supervised gambling licenses (Malischnig, Griffiths & Auer, 2018). The law provides for state-licensed gambling to be supervised by the Federal Ministry of Finance. Along with the operating license, there are requirements for player protection measures and clear requirements for the supervision of the concessionaires. By resolution of the Federal Ministry of Finance dated 10 October 2011, the *Austrian Lotteries GmbH* was granted the license to conduct lottery games in accordance with §6 to §12b of the Gambling Act (GSpG) for the period from October 2012 to October 2027 pursuant to §14 GSpG. This also allowed the operation of online gambling, electronic lotteries, (§12a GSpG) and video lottery terminals. By decision of the Ministry of Finance in December 2012 and September 2013, *Casinos Austria AG* was granted 12 casino licenses for 15 years each. Exceptions to the gambling concessions by the Federal Ministry of Finance were sports betting and the regulation of electronic gaming machines (EGMs) outside of casinos. These forms of gambling are currently the responsibility of the nine Austrian federal states. In 2018, the lottery sales network in Austria comprised 5066 points of sale, which were selling scratchcards and

various lottery card games (Corporate Communications, Casinos Austria & Austrian Lotteries, 2018).

A high availability of gambling products increases the opportunity to gamble and the prevalence of problem gambling (Derevensky, 2009; Gosselt, Van Hoof & De Jong, 2012; Gosselt et al., 2013; Hayer, 2013; Monaghan & Derevensky 2008; St-Pierre, 2008) although increases in the number of regular gamblers are not necessarily proportional to increases in problem gambling (Griffiths, 2007). The 12-month timeframe prevalence rate for problem gamblers in Austria aged 14 to 65 years is 1.1% and remained stable between 2011 and 2015. This affects around 64,000 Austrians (Kalke et al., 2011a; Kalke, Buth, Thon & Wurst, 2018). Unfortunately, there are no specific data available for youth gambling problem rates in Austria (Calado et al., 2017).

Like legal ages for drinking alcohol, most international jurisdictions restrict gambling opportunities to those aged over 18 or 21 years (Gainsbury & Blaszczynski, 2012). Austria does not have a unified legal provision in place regarding the minimum age for the sale of lottery products. Retailers (except in Upper Austria) are permitted to sell lottery products to minors aged between 7 and 18 years to some extent. However, clear and uniform communication about the rules appears to be essential for compliance guidelines. Therefore, to standardize the sale of lottery products throughout Austria, the *Austrian Lotteries* introduced a voluntarily minimum age of 16 years in 2009 for the sale of lottery products to minors. Since then, retailers must examine minors age by checking their ID card. In addition, test purchasing, and responsible gambling training (one mandatory face-to-face training and one mandatory online training each year) have been introduced by *Austrian Lotteries*.

The contractual commitment requires that the *Austrian Lotteries* retailers must comply with the minimum age of 16 years for the sale of lottery products. The retailer must tolerate being tested by test purchases and must commit contractually to an escalation path in the event of non-compliance. The consequences of non-compliance (escalation path) of the contractually

agreed player protection guidelines are: (i) in the event of a first offense, a written warning and a follow-up training will be given by the responsible sales representative; (ii) a second violation will result in a new written warning and more extensive retraining; and (iii) a third violation leads to termination of the contract by the *Austrian Lotteries*.

The present study and origin of datasets

The purpose of the present study was to identify the influencing factors that may affect retailer's compliance with youth protection measurements. An extended framework was used because it is conceptually the most appropriate for the purposes here: to check whether compliance with youth protection requirements by lottery retailer is supported through responsible gambling training and/or framework conditions, and/or the personal attitude towards compliance with youth protection measures and the social pressure of customers perceived by the retailer (based on TPB, Ajzen, 1991), as well the assessment of whether the implementation of youth protection measures is subjectively experienced as difficult (based on TPB, Ajzen, 1991).

Figure 1 about here

This was done by monitoring (i) the number of completed responsible gambling training courses in the past, by evaluating (ii) the seller and the test purchaser (age, gender) during the test purchase, by taking into account the framework conditions (iii), whether the outlet was based in a rural or urban area, as well as the industry sector to which the retailer belongs to (e.g., tobacconist, food retailer, gas station, post office, bank, or other), and (iv) the opinion of the seller on mystery shopping, the level on challenges to implement youth protection measures in place and the probability to be tested by a test purchaser.

In the first round in 2014, the entire sample of retailers in Austria was trained by the *Austrian Lotteries* sales representative. Afterwards they were asked to participate in this

research and to give voluntarily feedback about their satisfaction and usefulness of the training and to their knowledge about gambling addiction and the recognition of problem gamblers (Kirkpatrick's Four Level Model, Level 1 ['Reactions'] and Level 2 ['Learning']). In the second round, test purchases were analyzed to evaluate the retailer's behavior and the learning transfer of training content to the workplace (Level 3 ['Behavior']), and the third round was extended and supplemented by questions regarding Ajzen's TPB (1991) about the retailer's attitude to player protection issues, to behavioral control, and to the perceived social pressure (Level 4 ['Results']).

To test compliance of the youth protection regulations in the daily routine, an independent agency carried out unannounced mystery shopping checks during 2014. The external agency instructed the test purchasers not to appear older than her stated age and to be dressed appropriately (e.g., no wearing of make-up, no clothing covering the individual's face) (Radecki, 1994; Clark et al., 2000). Parental permission was obtained for participation by the minor in the study by the agency. Between April 14 and May 3 (2014), the first mystery shopping round was completed. The second round took place between August 5 and September 1 (2014), and the third round took place between October 7 and November 26 (2014). The survey was restricted by the online terminal (which is installed in every shop) to three multiple-choice questions, each with four possible answers. The survey asked for the personal assessment of the retailer whether the behavior (age/ID check) was easy or difficult to implement, and the extent to which the retailers estimated the probability of a revisit by test purchasers, which can be relevant to the implementation of youth protection measures. Additionally, the retailers' personal attitude to test purchases was rated. For the analysis sample, the intersection of the participants who appeared in all three rounds (n=1,036) was used.

The evaluation was part of larger project by the first author. The board members of the *Austrian Lotteries* (responsible for player protection issues), agreed to the study in 2013. In course of the agreement it was granted that the authors would use original data from the

Austrian Lotteries retailers for the study. Furthermore, it was assured that *Austrian Lotteries* would have no influence on the evaluation and interpretation of the study. Retailers' acceptance of taking part voluntarily in the study was obtained by *Austrian Lotteries*. To answer the research questions, the research team was provided with original datasets (i) directly from the *Austrian Lotteries* sales representatives after the retailer responsible gambling training in 2014/2015 (n=5,032), (ii) from the test purchases carried out in 2014 (n=1,421), and (iii) retailers' answers concerning their attitudes to youth protection issues (n=4,516; transmitted directly via a virtual interface to the authors in 2015: see Table 1 for a summary). The study was carried out without any financial remuneration provided by the authors. It should also be noted that the study was exploratory using pre-existing datasets and therefore there were no specific hypotheses.

Table 1 about here

Methods

Participants and procedure

In 2014, the sales network of *Austrian Lotteries* comprised 5,216 points of sale. The main focus of the present evaluation was in analyzing data drawn from a representative subset of sales partners who participated in three rounds of data collection. The research team received the original data (i) directly from the sales agents of the *Austrian Lotteries* after their responsible gambling training of the retailer in 2014/2015 (Round 1: n=5,032), (ii) directly from a third-party agency carrying out test purchases (i.e., 'mystery shopping') in 2014 (Round 2: n=1,421) and (iii) retailers' responses to their attitudes to youth protection issues (through direct interface with the research team) in 2015 (Round 3: n=4,516). The data from a total of 1,036 participants who had taken part in all three rounds was analyzed in the present study. The analysis sample (n=1,036) was representative of the whole sample of *Austrian Lotteries* retailers (n=5,216). As shown in Table 2, on the day of sampling for the 2014 test purchases (2014/01/31), the overall

sample (in terms of the industry sector) was very similar to the analyzed sample. The retailers' IDs were randomly selected from the *Austrian Lotteries* data base with a random number generator.

Round 1 (n=5,032) consisted of those retailers who had completed the responsible gambling training in autumn and winter 2014 and whose data were available until January 1 (2015). This corresponds to a response rate of 99.6% from the original sample size (n=5216). A total of 164 records were classed as invalid for different reasons. For example, if the questionnaire was incomplete or if the retailers had refused to participate. Some retailers (n=20) were unable to take part in the survey, because they had seasonal opening times and had closed at that time. This resulted in 5,032 data records for further evaluation. The questionnaire comprised 18 items (as used in the survey by Kalke et al., 2011a), concerning the retailer's knowledge about gambling addiction issues and how to identify and handle problem gamblers (e.g., "*What do you do if you detect that a customer shows risky or addictive gambling behavior?*") along with ten possible responses such as referring them to a professional counselling agency, not allowing them to gamble, not doing anything). The survey was carried out between October 2014 and the February 2015. The average time to complete the survey was 30 minutes.

Round 2 comprised data relating to test purchases made in 2014 (n=1,421). Data collected included (i) the retailer's address, gender, and estimated age (under 30 years, 31-50 years, over 50 years); (ii) the number of customers in the retail outlet; (iii) type of lottery product purchased, and how much it cost; and (iv) whether the individual buying the lottery product was asked for their age and ID, and who they were buying it for.

Round 3 comprised retailers (n=4516), who answered a short online survey regarding questions relating to their approach toward responsible gambling issues (e.g., their attitudes toward the test purchases carried out by the Austrian Lotteries in order to check compliance with the protection of minors in the reception centers, how easy or difficult it was to implement the youth protection measures such as checking ID, how important is it to comply with the

youth protection rules for customers, etc.). This resulted in a response rate of 84.7%. The average time to complete the survey was five minutes.

Table 2 about here

Data analysis

The present study was in essence a secondary analysis of existing datasets. Descriptive analysis, cross-tabulation analysis, chi-square tests, and stepwise logistic regression analysis were used to detect and explain correlations, and to estimate and predict 'sale versus no sale' to minors. Logistic regression was used to examine the relationship variables and predicting compliance. Variables included in the model were those which were significantly associated with sales in an exploratory analysis. In the stepwise logistic regression analysis, those variables with the greatest explanatory power are sequentially selected until no further variables produced the required progression (Backhaus, Erichson, Plinke & Weiber, 1990). That meant that the procedure added or removed independent variables one at a time using the variable's statistical significance. To detect and prevent multicollinearity, correlation coefficients for all pairs of predictor variables were calculated. These variables were removed from the model where the r -value was close to or exactly -1 or +1.

Results

Descriptive analysis

Data captured from the analyzed sample (n=1,036) included 55.3% executives, 11.1% deputy executives, and 33.6% sales assistants at Austrian Lotteries outlets (69.6% female). Most of the 1,036 participants surveyed had already worked in their sales outlet for more than five years (71.6%). In the analyzed sample, 413 participants had previously completed more than five training courses (39.9%), 391 had completed between three and five training courses (37.7%), 211 had completed one or two training courses (20.4%), and 21 said they had never participated in a responsible gaming training course (2%). One-quarter of the lottery sales

outlets were situated in urban areas (25.5%), and the remaining three-quarters of sales outlets were in rural areas (74.5%).

Many participants considered their own level of knowledge of gambling addiction and the protection of young people to be 'very good' or 'good' (85.3%), whereas 13% thought it was 'average' and 1.6% 'poor' or 'non-existent'. Their level of knowledge on how to (i) identify problem gamblers and (ii) handle problem gamblers was described by 71.6% and 71.3% as 'very good' or 'good' respectively. Almost nine in ten participants assessed their knowledge of counselling and treatment centers (i.e., support/referral system) to be of a similarly high level (87.4%).

Separately, an anonymous survey was chosen for the feedback after the responsible gambling training in Round 1 (n=5032) with a response rate of 81.3% (n=4093). When asked "How satisfied were you with the content of the training?", 88.3% answered 'very good', 9.5% 'good', 1.7% 'satisfactory', and 0.5% 'sufficient' to 'insufficient'. To the question: "How satisfied were you with the practicability of the training?", 63.1% answered 'very good', 25.2% 'good', 7.3% 'satisfactory', and 4.4% 'sufficient' to 'insufficient'. On the third question "How satisfied were you with the training period?", 89.7% answered 'very good', 5.4% 'good', 2.1% 'satisfactory', and 2.8% 'sufficient' or 'insufficient'. The answers were collected in form of five-level rating scales (1=*very good*; 5=*insufficient*).

Round 2 (n=1, 421) comprised test purchases made in 2014 and assigned to the relevant retailer. The results show that in 13.1% of 1,421 mystery shopping tests (n=186), lottery products were sold to young people under the age of 16 years. In line with the distribution of sectors in the lotteries' sales network, mystery shopping checks were conducted most frequently in tobacconists (45.1%), followed by food retailers (16.4%), gas stations (15.2.0%), other retailers (9.2%), post offices (9.1.7%), and banks (4.9%). All purchase attempts were conducted by under-aged mystery shoppers (52.5% female, 47.5% male). Their ages ranged from 10- to 15-years of age. The average mystery shopper was 11.9 years old (SD=1.4). During the mystery

shopping checks, 1.84 people were present on average during the purchase transaction (SD=2.6, minimum of 0 and a maximum of 50). Mystery shopping checks were conducted evenly across the day. Just over two-fifths of the mystery shopping transactions (42.4%) were conducted in the morning (before 12 noon), while the remainder (57.6%) were carried out in the afternoon (after 12 noon). In the 1,421 mystery shopping checks, the mystery shoppers were asked how old they were in 748 cases (52.6%), while 157 were asked to show their ID (11%).

In Round 3, 935 participants out of 1,036 participants (90.3%) answered the question: "How easy or difficult do you realize the implementation of youth protection measures? (e.g. check identity card) with 'rather easy' or 'very easy'. Almost 10% (n=101) answered this question as "rather difficult" or "very difficult". Participants were asked to assess whether complying with provisions to protect young people was important or not. Only 16.8% of the participants believed that compliance was 'less important' or 'unimportant' for their customers, while 83.2% felt that their customers considered such provisions to be 'quite important' or 'very important'. A very small proportion of retailers (2.7%) thought it was 'quite unlikely' or 'unlikely' that they would be subjected to further mystery shopping checks by *Austrian Lotteries*, while the majority thought that this was 'quite likely' or 'very likely' (97.3%).

Logistic regression analysis

In line with the specifications in the explanatory model for compliance with provisions to protect young people in the sale of lottery products, the assumed critical parameters for such compliance were used (see Figure 1). To calculate the multifactorial influences, stepwise logistic regression analysis included the following variables: (i) age of the mystery shopper, (ii) number of customers in the shop during the transaction, (iii) time of day (morning or afternoon), (iv) age of the salesperson, (v) industry sector (e.g. tobacconist, food retailer, gas station, post office, bank), (vi) gender of the mystery shopper, (vii) gender of the salesperson, (viii) age requested (yes or no), (ix) ID requested (yes or no), (x) satisfaction with information provided

by *Austrian Lotteries*, (xi) number of completed responsible gambling training courses (0, 1-2, 3-5 or more than 5 training courses attended in the past), (xii) opinion on mystery shopping, (xiii) level of difficulty of implementing measures to protect young people, (xiv) assessment of probability of future mystery shopping checks, and (xv) assessment of the social norm (importance to customers of compliance with the provision to protect young people). Satisfaction with training for reasons of multicollinearity was not included in the regression analysis. For the interpretation of the model, as shown in Table 3, the rows under Step 6 are relevant.

Table 3 about here

The regression coefficient demonstrates whether the variable correlated positively or negatively with the sale. Results demonstrated that the risk of selling to a customer aged under 16 years was very low if the retailer asked for the age (the test purchasers had to answer truthfully), or if the individual's ID has been checked by the vendor. The chances of a successful sale increased by four times with each year older that the test purchaser was. This means that the older the mystery shopper was, the greater the chance of a sale. Another notable feature was the gender of the test purchaser. Sales to girls were approximately 3.2 times more prevalent than sales to boys. Results also showed that the higher the number of completed training courses and having a positive attitude to test purchases resulted in a much higher likelihood that no lottery products were sold to the test purchaser.

Findings also indicated that those retailers who had a negative attitude to test purchases sold lottery products to a higher percentage of those under 16 years old (25.7%) than those who had a positive attitude to test purchases (10.7%), a statistically significant difference ($\chi^2 = 19,320$, $df = 1$, $p < 0.001$). Findings also showed that sellers estimated by test purchaser to be between the ages of 31 and 50 years were the least likely to sell lottery products (8.7%). The

sales by those estimated to be over-50s (18.9%) were significantly higher ($\chi^2 = 18,600$; $df = 2$; $p < 0.001$).

Tables 4 and 5 about here

Discussion

In order to evaluate the effectiveness of training measures concerning compliance in the selling of lottery products to minors by lottery retailers in Austria in the present study, the factors that were considered in the most likely to influence this behavior included the age of the buyer and seller of lottery products, the gender of the buyer and seller of lottery products, attitudes towards mystery shopping, and amount of previous training in responsible gambling (Ajzen, 1991; Blaszczynski et al., 2011; Breen et al., 2006; Dufour, Ladouceur & Giroux, 2010; Kirkpatrick, 1970; Ladouceur et al., 2004; LaPlante, Gray, LaBrie, Kleschinsky & Shaffer, 2011; Oehler et al., 2017). A specified model was used that has proved helpful in explaining the transfer of learning content into everyday working life (i.e., Kirkpatrick, 1970, Ajzen, 1991).

Results demonstrated that the older the mystery shopper, the greater the likelihood that a lottery product would be sold. The probability of a lottery product sale to a female was higher than that of being a male. If the customer was asked for age or had to show ID, the risk of a non-compliant sale was very low. The analysis also showed that the higher the number of responsible gambling training sessions completed in the past and the more positive the attitude towards mystery shopping, the less likely a retailer was to sell a lottery product to young mystery shoppers. Although there were no hypotheses due to the exploratory nature of the study, most of these findings are arguably to be expected.

It was assumed that the satisfaction with the training would have an influence on the retention of what was learned (Kirkpatrick, 1970). The fact that most participants in the 2014 survey (Round 1) indicated that their level of satisfaction was ‘very good’ (88.3%) or ‘good’ (9.5%) serves as a strong indication that satisfaction with the responsible gambling training was high. A similar level of satisfaction (89.6% ‘very satisfied’ or ‘adequately satisfied’) with the

training offered is described by Giroux, Boutin, Ladouceur, Lachance and Dufour (2008) regarding responsible gambling training provided to casino employees in Quebec (Canada). A slightly weaker result was reported for responsible gambling training offered to video lottery terminals employees in Canada (Province of Quebec), with 74.7% assessing it as ‘very satisfactory’ or ‘adequately satisfactory’ (Dufour et al., 2010).

Training processes are used in organizations with the intention of achieving better goals (Bates, 2004, Kirkpatrick, 1970; Rafiq, 2015). It appears plausible that a higher number of completed training courses is a predictor of compliance with the rules. Among the present study’s participants, as the number of completed responsible gambling training sessions increased, the likelihood of not selling lottery products to young people also increased. This is one of the core results of the present study and adheres to the proverb that ‘little strokes fell great oaks’. It also concurs with the recommendations of Dufour et al. (2010) and Hasselqvist and Thomas (2012), namely that repeated training is crucial to maintaining high levels of knowledge and a permanent willingness to implement provisions to protect young people. This is the only way to ensure that all lessons have been learned and are applied on a lasting basis. To ensure that all lottery retailers follow the rules and achieve a 100% compliance rate, regular responsible gambling training should continue to be provided as advocated by both Arthur et al. (2003) and Griffiths (2012). Also, the sustainability of the efforts, as endorsed by Blaszczynski et al. (2011) and Oehler et al. (2017), and consolidating what has been learned by consistently repeating training content with different didactic possibilities (face-to-face and online-settings), was evident among most of the lottery retailers in the present study.

To ensure the main application of the training content (no sale to those under 16 years) in an everyday sales context, test purchases (i.e., mystery shopping’ exercises) were undertaken. Of 1421 mystery shopping checks, lottery products were sold to 13.1% of those under the age of 16 years. Worldwide, the results of many compliance studies indicate that compliance with regulations aimed at restricting people’s access to risky products is also problematic in other

countries. In a Dutch study, there was a zero-compliance rate with provisions to protect young people (Gosselt et al., 2013), and findings from Canada (St-Pierre et al., 2011) likewise reported a relatively low compliance rate (59.6%).

Many studies have shown that age and gender often (in both the mystery shopper and the salesperson) play a role in complying with the rules (Clark et al., 2000; Corporate Research Group, 2008; Gosselt et al., 2012; O'Grady et al., 1999; Paschall et al., 2007; Radecki & Zdunich, 1993; St-Pierre, 2008; St-Pierre et al., 2011). This finding has been repeatedly confirmed for different age-restricted products (Clark et al., 2000; Corporate Research Group, 2008; Forster et al., 1994; Klonoff & Landrine, 2004). Although the external agency was required to select the test purchasers so that they looked appropriate to their age and to instruct them that they did not make themselves older with clothes or make-up (Radecki, 1994; Clark et al., 2000), in the present study, it turned out that the probability of a non-compliant sale was almost four times higher with each year the test purchaser was older. St-Pierre et al. (2011) reported in their study that more sales were made to girls than to boys, a finding that is confirmed in the results of studies of tobacco sales to minors (Clark et al., 2000; O'Grady et al., 1999) as well as in the present study. More sales were made to female test purchasers compared to boys (OR: 3.2). One possible reason for this is that females tend to enter puberty before males meaning that girls look older than boys in their early- to mid-teens.

Asking a person's age and requesting formal ID are good predictors of products not being sold to minors. As a result of the present study's findings, every retailer should utilize ID checks if the person looks younger than 23 years (cf. also O'Grady et al., 1999; St-Pierre et al., 2011). As previously described, the sales partners of the *Austrian Lotteries* were also surveyed regarding their attitude towards test purchases, their assessment of social pressure, and the probability of further test purchases, and the degree of difficulty in the implementation of youth protection requirements.

It has also been suggested that vendors of similar age to the purchaser are the most likely to sell restricted products to minors (Health Canada Tobacco Control Program, 2007; McDermott et al., 1998), but in the present study it was the opposite. Those vendors aged over 50 years sold more often lottery products to minors than younger colleagues. This would therefore be an interesting and important area for future qualitative focus groups or interviews to explore why this was the case.

A positive attitude (Godin & Kok, 1996) towards the protection of minors was clearly helpful in implementing compliance requirements. In the present study, retailers with a positive attitude towards mystery shopping were more likely to comply with the rules. Therefore, ongoing monitoring of compliance with the provisions on the protection of young people via mystery shopping campaigns – as recommended by experts (Clark et al., 2000; Forster et al., 1994; Griffiths, 2012; O’Grady et al., 1999; Radecki, 1994) – appears to have a positive effect on the attitude towards control measures. Moreover, many of the measures introduced by *Austrian Lotteries*, such as the contractual fixing of compliance with the protection of minors (including an escalation path resulting in termination of being able to sell lottery products after the third break), ongoing monitoring of compliance, and the provision of responsible gambling training, appear to support the compliance. In Finland, Warpenius et al. (2016) also recommended the combined use of statutory regulations with ongoing training.

For conceptualizing the causal pathways between attitudes and behavior, theories – such as the Theory of Planned Behavior (Ajzen, 1991) – are often used to explain and predict a range of human behaviors (Ajzen, 1991, 2002). Subjective norms consist of the individual’s perceptions of social pressure from important others to perform or not perform the behavior. Somewhat surprisingly, the analysis of the variables used in regard to Ajzen’s Theory of Planned Behavior (1991) showed that the assessment of how difficult it is to implement the measures to protect young people (“perceived behavioral control”) did not have a significant effect on compliance with the rules. Even the social norm (Fishbein & Ajzen, 2010) assessed –

as in Moore and Ohtsuka (1997) – in terms of the social pressure from customers, did not prove to be a key predictor in the present study of whether a retailer sold lottery products to young mystery shoppers or not. One reason could be that most retailers observe pressure from customers to be in line with the youth protection requirements and so they perhaps answered in the most socially desirable way. St-Pierre et al. (2015a) also came to the “unexpected finding, that family and peers’ subjective norms were not associated with gambling intentions in the structural models” (p. 518).

It should also be noted that no (randomized) control group was used in the present study because all retailers are required to complete mandatory responsible gambling training prior to the commencement of sales. When evaluating Level 1 ‘reactions’, the influence of the trainer must also be considered (Morgan & Casper, 2000). The personal attitude of the regional sales representative towards responsible gambling may likewise have an influence on how the training is provided and could ultimately influence the retailer’s reaction after the training. The present study did not examine this potential influence, but it would be an interesting area for future research. Regarding Level 2 ‘learning’, it must be noted that other possible influencing factors, such as personal interest, self-study, and/or information via the mass media, can also lead to an increase in knowledge. Again, these items were not considered in the present study.

The significance of the present study’s results is also limited by the fact that responsible gambling training was compulsory and therefore all sales partners of *Austrian Lotteries* had to participate. However, it is reasonable to assume that there was still considerable support for responsible gambling measures. Furthermore, it should also be noted that the responses to the surveys were based exclusively on self-report (Kalke, Verthein, Buth & Hiller, 2011b) and could not be validated using further methodologies. Such data are also subject to well-known biases such as social desirability and memory recall. An external agency was responsible for selecting the mystery shoppers (Level 3). No preliminary test, such as that described in the study by St-Pierre et al. (2011), was therefore possible.

Based on the results, it can be concluded that a valid and visible system of external surveillance (test purchases), which affects the vendors' perceived risks of being caught for non-compliance (enshrined in a contract) while also emphasizing the legal basis and internal compliance rules as well as the importance of complying with the age limits, is still essential. Furthermore, more emphasis needs to be placed on the fact that retailers are more likely to sell lottery products to girls than to boys. Corresponding exercises and training programs also need to be developed for this purpose. Furthermore, test purchasers were very young in average (median age of 12 years). It is recommended that this investigation be repeated with test persons who are closer to the age of 16 years. Overall, the results of the present study demonstrate a need to incorporate measures into future training to reach those retailers who do not yet comply with the rules.

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