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Gay-related smartphone applications: potential and risk- a review of the medical literature in the field

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Abstract

In the setting of difficulty in finding inter-relational partners for the individuals belonging to the LGBT community, a number of mobile phone applications provided with geo-tracking system have appeared in the last years, facilitating communication between gay individuals located in the nearby geographic areas, free applications which protect the identity of the users and indicate the relative distance between users and allow the sharing of information regarding physical characteristics (age, height, weight) as well as image-type files. At present, it is worth acknowledging that all those applications addressed to the LGBT persons in search for partners are sex-specific, being polarized (applications for MSM/lesbians). Among those the most successful and renowned are Grindr, Planet Romeo (homosexuals, MSM) and, respectively, Brenda (lesbians).

In the medical literature there are recent studies that assess the STI risk-specific profile of these users, as well as the opportunities of behavioral study that these applications are presenting to the scientists, through the accessibility of interviewing gay persons and targeting them in HIV prevention programs. The present paper aims to look over the medical studies published to date which involved these types of internet type social networks, emphasizing on the potential represented by these applications and on the behavioral and risk profile of the users.

Introduction

Gay individuals represent a numeric minority, often making the object of abusive and discriminating measures; under those circumstances, to prevent more or less shown/manifested public rebellion, whose intensity varies greatly depending on the geographical coordinates, sexual orientation is often hidden. In this setting LGBT persons often find difficulties in meeting partners for starting affective/sexual relationships, only having access to a relatively narrow selection basis, proportional to the acceptability of homosexuality in that society.

In this setting, numerous applications dedicated to mobile phones have occurred in the last years facilitating mutual identification, communication and meetings between persons of homosexual orientation ; the applications for smartphones are easy, free of charge (at least for basic functions) and perceived as discrete and convenient (1).

The user instructions are accessible, the applications presenting an intuitive graphic interface. After downloading the application and identifying as a user by completing a profile with demographic data and physical characteristics, having the possibility to choose an image presenting either the user or an image considered by him as representative, the profiles of users located in nearby geographic area (geo-tracking system) are displayed, and the distance between those is shown on the screen in real time; the users are presented in ascending order depending on the distance between users; the latter may vary between a few dozen meters (in urban agglomerations) and several thousands of kilometers. Therefore, the users can initiate conversations with other users they choose after seeing their profile if they consider the person compatible.

MSM individuals who access this application do it for fun, socialization, search for a partner and/or a connection to the gay community. The percentage of MSM persons using the application and finding sexual partners by this means is extremely high, some studies reporting a ratio of 75%. (1).

The number of Grindr users in 2011 was over 3 million persons in 192 countries all over the world with a daily registration ratio of 8000 users. Certain studies show that 80% of the users log in/ check the application at least once daily and that over 85% of the individuals are single (1).

An equivalent of this application for heterosexual persons also exists. Such applications include Badoo, Twoo, just to mention a few of them. Worth noticing is that these applications also offer the possibility to opt for displaying/ preferentially selecting same sex persons, thus allowing homosexual networking. However, the above mentioned applications only allow the presentation of clear images which unambiguously describe the users, allowing their identification through the recognition of facial traits. The image authentication is performed by human operators.

Other consecrated applications include Planet Romeo and Brenda (homosexuals, lesbians respectively); those have the same principles of functioning, with minor interface differences. Worth mentioning is that the number of declared opposite sex users to the specific of the application is extremely low, even though the applications are self-proclaimed gay/bi-friendly, which can be interpreted, of course, in a by no means way foreign to speculation manner- as a tendency to social auto-segregation by sexual criteria. For instance, Rice et. al analyzed a cohort of 195 Grindr users and noticed that 86.6% were homosexuals, 9.3% bisexuals and 0.5% heterosexuals (1).

Discussion

In the medical literature there are some studies which use these application in their methodology; all those studies are recent, being published between October 2012 and April 2014 and have as an object the Grindr application dedicated to MSM viewed through the prism of the potential of targeting gay individuals and evaluating the risk behavior as regard to contracting HIV infection.

The first of these studies, performed by Burrell et al, acknowledges the potential of the Grindr application to recruit MSM individuals for HIV infection prevention studies (2). The study analyses the

demographic profile of Grindr users as well as the behavioral characteristics of their sexual life, as compared to a cohort comprised of individuals recruited through conventional means (flyers, telephone, internet advertising, conventional etc). The study performed in Los Angeles, United States, showed a higher percentage of individuals aged 18-30 in the cohort of MSM recruited via Grindr as compared to the ones recruited through traditional methods (56% vs 18.8%, $p=0.0003$), with university/postuniversity training (68% vs 40.3%, $p=0.0158$). The two MSM cohorts did not present statistically significant differences as regard to the number of MSM partners with whom they had had anal sexual relations during the entire life period (79.6 vs 71.2, $p=.8822$), the number of partners with whom they had had anal sexual relations during the last year (8.9 vs 5.9, $p=0.1944$), the number of sexual intercourses in the last 14 days - anal receptive (2.0 vs. 1.8, $p=0.88$), - anal insertive (2.5 vs 1.9, $p=0.47$); the heterosexual sexual behavior was also assessed in the individuals included in the study; therefore the number of vaginal sexual acts (heterosexual) was at an average of 0.7 in the last year, respectively 0.5 in the last 14 days among MSM recruited with the help of the Grindr application and 1.3 and 0.6 among MSM recruited in the study through conventional methods, with no significant differences. The authors conclude that the Grindr application is a very effective method of recruiting MSM for medical studies, with a very high percentage of responsiveness/adherence to the protocol (2).

Landovitz et al analyze the epidemiology, risk behavior and HIV prevention practices in Grindr users on a cohort of 375 MSM from Los Angeles, United States. The authors observed a high percentage of individuals with multiple sexual partners and a high rate of unprotected anal sexual relations (3). 70% of the ones who had reported unprotected anal sexual intercourses presented reduced knowledge regarding the risk of acquiring HIV infection. Over 80% of the MSM enrolled in the study asserted that they had been tested for HIV during the last year; 4.5% of the participants in the study were HIV positive. A clear association between the HIV-positive status and the high number of sexual partners during the three months preceding the study was observed. The authors conclude that Grindr users

represent populations at risk for HIV infection, and, in the same time, a potential target for human immunodeficiency virus infection prevention campaigns (3).

A study performed by Rendina et al in January 2014, on a group of 1351 MSM Grindr users from New York, United States, assessed the HIV testing patterns in the users of the application and observed a percentage of 90% testing during lifetime and 71% testing during the last year; the authors also conclude that the lack of testing in 1 out of 5 respondents aged 18 to 24 recommends the Grindr application as a potential target for HIV infection prevention (4).

Another study published by Holloway et al evaluate the acceptability of prevention campaigns through mobile applications of the Grindr type and notice, on a cohort of 195 Grindr users, an acceptability of 70% of these campaigns (5).

Winetrobe et al analyzed the risk profile for unprotected anal intercourse (UAI) in Grindr users, and observed that the familiarity with the application is associated with a higher risk for such intercourses. 20% of the interviewed reported UAI with other Grindr users. Also, the authors noticed an interesting association between the appetite for risk of the users and their application profile; therefore, they conclude that HIV infection prevention strategies should target Grindr users in general, as a high risk group, and among these especially the ones with a sexualized application profile (presenting the abdomen or pectus in the image attached to the user profile) (6).

Martinez et al also performed an analysis of the potential of recruiting/ targeting Hispanic MSM from the United States via social media, and observed that these internet applications present a very good potential of targeting these individuals for anti-HIV campaigns and various studies (7).

Rice et al published a study conducted in 2012, aiming to compare the behavioral pattern of Grindr users and their risk behavior regarding sexual intercourse with partners encountered on Grindr as compared to partners encountered under other circumstances. The study included 195 MSM from California, United States. 75% reported that they had sexual intercourses with persons met on Grindr; the percentage of condom

use was 59.8%, as compared to only 41.9% with partners encountered outside the application. MSM who admitted to having UAI presented a higher number of sexual partners as compared to the ones who did not have such intercourse (1).

The potential of recruiting gay individuals for various behavioral studies is extremely high for numerous reasons such as high efficiency, low costs of the interview, the possibility to access the individuals at any time of the day (as compared to studies performed in gay communities such as gay bars etc which can only be performed at night) and can also access a large community of MSM who do not openly affirm their sexual orientation (1).

Limitations

The limitations of the specified studies consist in the low number of participants; also, it is worth acknowledging that given the novelty of such applications, there exist no studies older than 2 years or extending on a greater period of time. Larger studies, performed on bigger cohorts are necessary to present a considerable statistical significance, as well as studies performed on longer periods of time. All these studies are necessary because the present data is quite inconsistent; therefore, some studies show that engaging in communication directed towards finding sexual partners is associated with a lower risk of contracting HIV infection, since, for example, these online initiated relations reduce the risk of random sexual relations under the influence of drugs or alcohol (8).

Furthermore, even though the application is present in 192 countries and has over 3 million users, with an explosive popularity raise among MSM (1), considering that behavioral patterns differ extremely depending on the geographic area and that the above mentioned studies are performed in the United States, a certain reasonable reservation must be maintained regarding the applicability/reproducibility of the results of these studies in each separate country.

Moreover, even though the association of employing these Grindr type applications with a higher risk of HIV infection among these users was observed by some of the above mentioned studies, a testing

of the direction of this association was not performed; this could constitute the objective of subsequent studies.

Conclusions

Most of the studies published in the last years conclude that the users of Grindr type geo-tracking mobile applications represent a population segment at higher risk of contracting HIV infection as compared to the rest of the MSM population. These internet applications can also offer considerable possibilities of efficient recruitment of MSM participants for behavioral studies and can represent an effective modality of targeting individuals at risk for sexual transmitted infections, especially HIV.

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