



Prevalence and Correlates of Abusive Behaviours in Upper Egyptian Adolescents: Violence, Sexual Abuse Victimization, and Substance Abuse among Blood Group Types Subsets

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Authors' contributions

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ABSTRACT

Deviant behaviours, namely physical violence, sexual abuse; illicit drug use are globally spreading risks. They tend to be socially concealed, rendering evaluating their impact upon population subsets difficult.

Aim: Analyse trends and correlates of violence, sexual abuse, and substance abuse victimisation among adolescents in Upper Egypt.

Methods: Youth aged 15-21 were randomly selected and cross-sectioned; and a validated questionnaire was used to achieve study aim.

Results: Out of 1225 recruits, 30.2% were 15-<17, 58.9% were 17-<19, 10.9% were 19-21y old;

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and 66.0% were male. Half (49.5%) of participants was of a low socioeconomic status (SES). Recognised victimisation rates of violence and sexual abuses were 42.0% and 8.7%, respectively; the prevalence of substance abuse mounted 9.4%. Those 15-<17y old were more liable to violence victimisation than older peers [(181/360) (50.3%), $\chi^2(df=2)=18.6, p<0.0001$]. Male participants were at a greater risk for violence victimisation [(400/870) (46%), $\chi^2(df=1)=13.4, p<0.0001$]; youths of the lowest SES had a similar tendency, too [(213/487) (43.7%), $\chi^2(df=2)=6.8, p=0.03$]. Being a female or of a low SES was associated with a higher sexual abuse incidence [(49/325) (15.0%), $\chi^2(df=1)=25.9, p<0.0001$; 52/465 (11.1%), $\chi^2(df=2)=7.9, p=0.018$], respectively. Male and the highest SES adolescents were more likely to abuse substance [(72/650) (11.0%), $\chi^2(df=1)=6.5, p=0.011$; (41/212) (19.4%), $\chi^2(df=2)=33.1, p<0.0001$], respectively. The frequency of substance abuse among AB blood group candidates was higher than among other groups [$\chi^2(df=3)=132.9, p<0.0001$].

Conclusions: Abusive acts victimisation is prevalent among Egyptian adolescents in Upper Egypt. Male gender and low SES are risks for physical abuse victimisation; high SES is risk for substance abuse. Prevalence of substance abuse among AB blood type individuals mandates further genetic and haematological research. Influenced by age and socioeconomic circumstances, a dynamic preventive approach guided by massive screening for early detection of risk groups is warranted.

Keywords: Violence; sexual abuse; substance abuse; blood group; adolescents; Egypt.

1. INTRODUCTION

Risky behaviours are those that can have a disruptive impact upon the health and social integrity both of vulnerable groups and the society. Behaviours such as illicit drug use, aggressive actions, illegal sexual practices, hold back individuals, most important of whom are adolescents and young adults from successes and eventually stop their overall development plans [1]. Particularly in adolescence age, there is cognitive immaturity and hence the liability to submitting to social influences and trying out addictive substances and other hazardous behaviours is most common in this age [2]. The World Health Organization (WHO) defines adolescence as the age period between 10 and 19 years of age [3]. During teens' development, several physical, social, cognitive and emotional changes occur, e.g., gaining weight and height and looking more like adults, and more experienced way of thinking [4]. However, actual maturity is not yet complete and decision making not fully developed. Further, adolescent peers pressure provokes involvement into distorted behaviour. By large, the youth problematic behaviours follow a developmental sequence, and by middle childhood, antisocial actions, e.g., delinquent behaviours, aggression and property destruction are adopted. If these behaviours are not dealt with properly, they progress to include substance use, high-risk sexual behaviour, violent and law-breaking acts [5].

Definitions: According to the WHO, violence is "the intentional use of physical force, threatened or actual, against oneself, another person, or

against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation" [6]. Alternatively, physical assault occurs when "an individual or a group provokes and attacks a person physically, with or without the use of a weapon, or threatens to hurt that person," whereas domestic violence; also known as "intimate partner violence"- IPV, applies to exposure to physical violence between people in an intimate relationship, such as spouses and family members. Types of violence include a) type 1 (e.g., pushing, hair or ears pulling, pinching, shaking); b) type 2 (e.g., kicking, beating); c) type 3 (e.g., beating with a stick), d) type 4 (severest) (e.g., scalding, tying, drowning, suffocating, threatened with a gun, knife) [7]. "Substance abuse," has been defined by the WHO as the "harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs" [8]. The term "drug abuse" refers to "persistent or sporadic excessive drug use unrelated to acceptable medical practice," while "drug addiction" refers to "a state of periodic or persistent intoxication produced by repeated consumption of the drug and characterised by: compulsion (need to continue using the drug by any means) tolerance (increase the dose to get the desired effects), and psychic dependence on the effects of the drug detrimental to both individual and society" [9]. "Sexual abuse" (also "molestation") is defined as "the definite or threatened physical intrusion of a sexual nature, whether forcefully or under coercive conditions," while "sexual exploitation" involves any actual or attempted making use of a situation of vulnerability, discrepancy between powers, or

abuse of trust, for sexual purposes, including menace or profiting monetarily, socially or politically from the sexual misuse of another) [10]. (If force is immediate, of short duration, or infrequent, it is called sexual assault). "Child sexual abuse" (CSA) involves a "contact between a child and an adult or other person significantly older or in a position of power or control over the child, where the child is being used for sexual stimulation of the adult or other person," [12=8] (In which case the child is manipulated to "participate in a sexual act aimed toward the physical gratification or the financial profit of the person committing the act." Forms of CSA include: a) asking or pressuring a child to engage in sexual activities, b) indecent exposure of the genitals to a child, c) displaying pornography to a child, d) actual sexual contact with a child, e) physical contact with the child's genitals, f) viewing of the child's genitalia without physical contact, h) using a child to produce child pornography [11].

Physical violence: More than 1.3 million people worldwide die each year as a result of violence in all its forms, accounting to 2.5% of global mortality. For people aged 15–44 years, violence is the fourth leading cause of death worldwide [12]. Globally, too, one in three women experience gender-based violence (GBV) in their lifetimes, and 35% of women have experienced either physical and/or sexual IPV or non-partner sexual violence [10,12]. In the Arab region, studies have shown varying prevalence of adolescents violence across countries, e.g., ranging from 20.9% in the United Arab Emirates (UAE), [13] 31% Egypt, [14] and up to 44.2% in Jordan [15]. In the UAE study; 43.2% of students were in a physical fight, at a male: female ratio 2:1 (56.9% / 29.5%). Also, 30.7% of students were seriously injured one or more times (male: female serious injury ratio 1.8:1 (39.7%: 21.6%); 20.8% of students were bullied (15.0% hit, kicked, shoved around, or locked indoors) [13]. In a school-based national survey in Saudi Arabia (SA), a prevalence rate of 25.0% of bullying and 20.8% of physical violence were reported among students; [16] one of every five adolescents reported exposure to violence in the past year. (Importantly, parents tended to underestimate the impact of these behaviours, and school professionals have a low-moderate level of awareness of maltreatment). In Oman, 41.2% of students were in a physical fight, too; male students more likely than female students (46.7% vs. 36.0% = 1.3:1); 36.2% of students were seriously injured; 20.8% were bullied (14.8%

mostly by hitting, kicking or shoving around) [17]. The impact of SES, parents' child relationship and underlying family circumstance is enormous on shaping the behavioural profile of offspring during childhood and adolescent development. For instance, children whose mothers have not completed high school are at one and half times the risk of having maltreatment report. Likewise, children in poor families are 3-7 times more likely to experience maltreatment (most likely due to higher levels of family and neighbourhood risk factors for maltreatment among poor communities) [18]. The higher the poverty rate in a community, the higher risk is of maltreatment and neglect. Physical violence and bullying witnessed during adolescence are associated with several health; behavioural, emotional and psychiatric problems that can persist into adulthood [19,20]. Bullied students have also been shown to have poor academic performance. At the mental health level, evidence has linked being a victim of bullying to higher rates of depression, feelings of hopelessness, loneliness, and suicide ideation. Such suicidal tendency may persist throughout adulthood, together with risk of antisocial personality disorder which may be reflected as and IPV perpetration [20]. Bullied children are importantly at risk for developing drug use and aggressive behaviour, as well as borderline personality disorder in adulthood.

Substance abuse: The burden of substance abuse upon adolescent populations and the societies' health and economy is overwhelming. In the wake of the landmark moment in global drug policy, the UN Office on Drugs and Crime provided global overview updates on of illicit drugs, including plant-based drugs such as opiates, cocaine and cannabis; on amphetamine-type stimulants (ATS) and on new psychoactive substances (NPS) and their impact on health [21]. For instance, in 2010, approximately 5% of the world's population used an illicit drug, and 27 million people could be classified as "problem drug users"; and in 2014 there was an estimated 1 in each 20 adults between 15 and 64 years of age who used at least one drug; and over the 29 million who suffer from drug use disorders, 12 million were "people who inject drugs" (PWID) (of whom 14.0% live with AIDS/HIV) [21]. Drug use among youths was much higher than rates reported by adults, e.g., they are three times as likely to use marijuana, and five times more likely to engage in illicit drug use [22]. In the Islamic faith, alcohol and drug abuse are forbidden, whereas in the society, addictive behaviours are

stigmatising and hence tend to be "concealed" by the individuals involved. This might interfere with the representativeness of the population screenings and consequently the reported incidence rates of substance abuse in the societies. However, there is now enough evidence from recent studies to alert Arab Moslem communities to the realities and the magnitude of the drug problem [23]. A 2007 National Survey report stated that 8.5% of Egyptians were addicted to drugs, that the majority of them were 15 - 25 years old and that the addicts were considered as criminals rather than patients in need for treatment. The most common substances were cannabis derivatives (93.5%), alcohol (22.6%), pharmaceutical drugs (11.7%), opiates derivatives (7.3%), ATS (5.3%) and synthetic drugs (0.31%) [24]. Among the age group below 20, one in every 36 persons had tried addictive substance at least once, 16 of those who tried illicit drugs would turn into regular use, 4 of regular user would fall into addiction [25]. School children 13-18 years of age were studied in Zagazig, Sharkia governorate [26]. The prevalence of substance abuse among them was 8.8% (smoking also mounted 8.3%). The most common substances used by the students included tramadol, cannabis, and alcohol (83.3%, 27.8%, 16.7%, respectively), and the mean age of onset of substance abuse was 16.5 ± 1.098 years. Comparable Egyptian numbers have also been reported. A report from the National Addiction Research Program of Egypt revealed that among those who used drugs at least once (9.8%), 93% used hashish, 22% alcohol, 11% non-prescribed drugs, 7% opium, 5% cocaine and stimulants, and 0.13% solvents [27].

While substance misuse may involve behavioural, environmental and social determinants, such as media and peer-pressure, the influence of underlying hereditary and physiological traits have been a stressing matter of inquiry. In this regard, the relationship between blood types and substance misuse and addiction has been analysed. In the case-control study by Aflatoonian et al. in Iran found that among 390 out of 3000 self-introduced addicts referred to their rehabilitation clinic the odds of having AB – Rh-negative blood type among the addicts was 6.07 fold compared to other types among controls [28].

Risks and implications: The group of stresses surrounding the youth such as exposure to drugs, socio-economic status; quality of

parenting, peer group influence may increase the likelihood for drug use under 14 by two to fourfold and raise the risk of later addiction by five times [29]. Affifi et al. [30] conducted a study to examine the relationship between different types of childhood abuse and neglect and substance use disorders. All types of abuse (physical, sexual, emotional) and neglect (physical and emotional) increased the likelihood of all types of substance use. Not commonly, substance abuse may be used as a coping mechanism to negate the impact of previous life stressors and may be used to improve affect. [30,31] Buckner et al. [32] completed a longitudinal study of youth and young adults and discovered that social anxiety disorder is significantly related to later onset of cannabis and alcohol dependence. Because poor knowledge could be a precursor to substance abuse among adolescents, prior to program development, it is necessary to know about such knowledge about drug abuse in this population [23]. Exposure to drugs during such a period of critical neurological development may interrupt the natural course of brain maturation and functioning of adolescent victims. Even after only four weeks of monitored abstinence, adolescents who regularly smoke marijuana performed poorer on performance tests of learning, cognitive flexibility, visual scanning, and working memory [33].

Sexual abuse: Sexual violence exists across cultures and societal boundaries. However, exact figures are difficult to find. Despite comprising a small minority of the population, adolescents of both sexes represent approximately one-third of sexual assault and rape victims [34]. According to the predefined types of sexual abuse, prevalence estimates ranged from 8 to 31% of girls and 3 to 17% of boys; 9 girls and 3 boys out of 100 are victims of forced intercourse [35]. In USA, childhood sexual abuse is a public health problem experienced by an estimated 25% of girls and 16% of boys by the age of 18. [36] According to Statistics Canada (2012), more than half of all victims of sexual abuse or assault are under the age of 18; 80% of whom are perpetrated by someone close to the victim [37]. Although child sexual violence receives much attention in the West, it remains a topic of shame in most of the Arab world.

Victimisation risks and outcomes: Community-level risks include bullying; sexual violence, and rural/urban location, while household- and caregiving level risks include

poverty, non-traditional households (e.g., living with one parent or grandparents), household violence, and non-nuclear family, caregiver illness, mental handicap, risky parenting. The tight cultural norms and unacceptability of the society to talk of such incidences make it rather challenging to investigate. Many population groups continue to bear the same at risk in presence of lack of awareness regarding victim's rights, unwillingness to confront the legal system for fear of not being believed and become only left with tarnished reputation. Child sexual abuse is by far a significant risk factor for psychopathology, especially depression and substance abuse, and poorer mental health. The tendency for reporting attempted suicide; sleep disorders, eating disorders, alcohol intake at an early age, illicit drugs use, consensual sexual debut before age 15 or more anxiety, depression, somatisation, personality disorders, hostility and anger, all have been observed [38]. The longer duration of abuse the greater such impacts.

Employing policies that engage schools, families, healthcare providers and communities will probably yield long-term beneficial effects in deleterious behaviours control and prevention. Early intervention is best to forecast the accumulation of risk, but investment is also needed to offset the pattern of adolescent-onset risks and to work with those whose accumulated risks now need indicated prevention. Botvin et al. [39] indicate that in order for abusive behaviour prevention programs to be as effective, administering material to help resist engagement in deviant behaviours, and delivering information through cultural sensitivity that includes a language familiar to target adolescents are required. Efforts from pediatricians and primary care providers to overcome most barriers facing preventive policies implementation enhances early identification of risk groups and eventually lead to effective treatment. School- community-based prevention programs in Egypt yet have not achieved required scope and coverage. Well-planned and resourceful preventive programs stand as a first-line strategy in the fight against problematic behaviours and substance abuse. In the developed world, prevention of sexual violence has been attempted at all prevention levels, including therapies and measures to minimise the frequency of relapse.

Rationale and hypothesis: Owing to their long-lasting consequences, sexual abuse preventive measures should target both minors and adults to prevent assaults of minors in a sustainable

way. Besides norms, societal values, respective laws, and attitudes should be amended in such a way that abusers are clearly confronted everywhere. Many prevention programs which embrace relevant efficacious measures such as parenting education, home-visitation and teachers' training, proved partially effective. Therefore, the need for continued education seems to be particularly high in institutions which are taking care of a population that is already more endangered, such as children's homes and boarding schools. Traditionally, studies have concentrated on the influence of a single health risky behaviour for morbidity or mortality. However, researches have observed that there is significant clustering of health threatening behaviours. Moreover, the research done in the region has mainly excluded important aspects of adolescent health including alcohol/substance use and sexual/reproductive health [40]. Fortunately, many trials were in support of preventive interventions which could be cost effective at reducing adolescent behavioural problems over the past few decades. In a community, such as Egypt with deeply-rooted beliefs shaming behaviours interfering with the individuals' reputation, such as illicit sexual relations, risky behaviours likewise tend to be concealed by all means. However, the occurrence of such incidents often got to be disclosed, e.g., when victim submit to hospital for medical care as a result of a precipitated physical harm. We believe that the overall rate of reporting deleterious violence, sexual, and substance use behaviours in Egypt is currently on the rise. On the part of healthcare and social policy makers, exploring these behaviours assists in planning for optimum solutions. The current work was based on the hypothesis that although deleterious behaviours such as sexual abuse, drug abuse and physical violence and their victimisation can be prevalent, they are frequently hidden to avoid the stigma brought about. This study would be conducted to estimate the prevalence and correlates of risky behaviours and victimisation of socially-concealed nature among Egyptian adolescents. Revealing the actual size of these behaviours alleviate the threat posed upon to the youths' developmental, behavioural, mental, and psychological health as well as societal stability.

2. METHODOLOGY

Study design, setting and population: Adolescents visiting outpatient department

(OPD) and ambulatory services clinics in Qena University Hospital (QUH) were surveyed, during the period from January 2013 to February 2014. The hospital is a secondary care institution with many tertiary care subspecialties affiliated to South Valley University and located in Qena city, south of Egypt, and receives referrals from the surrounding governorates. The study population frame was accessed from the pediatric, internal medicine, obstetrics and gynecology (OB&GYN), clinical psychology OPD clinics, from which adolescent care seekers 15-to- 21 years old of both sexes attending QUH facilities during the study period were recruited. The number of youth to recruit was calculated using sample size for a proportion technique as in Epi-Info software (version 7) (<http://www.openepi.com/SampleSize/SSPropor.htm>); given: a) population size (for finite population correction factor- fpc) (N) = 100,000; hypothesised % frequency of outcome factor in the population (p) = 50% \pm 5; confidence limits as % of 100 (absolute \pm %) (d)= 5%; design effect (for cluster surveys-DEFF) = 1. A sample size "n"= 348 was obtained. Further 20% of "n" may be added to correct for nonparticipation or withdrawal from the study; and another 30% of "n" also added to make up for invalid responses, so a least "n" \approx 600 may be sought. Now that our data collection plan was based on the assumption that the willingness to participate in the study and responding to study questions, such as sexual exploitation and drug abuse would be limited; and in order to assure quality of the collected data, we planned for interrogating maximum 5-6 participants per day according to the number of working days per week we would be able to cover. The average daily flow of adolescent patients, as derived from OPD statistics over the past three years approximately equaled 55/day (\approx 20,000 per year). Assuming that only 10% of this number would agree to participate, so we were looking at 5-6 interviews, same as the daily number of interviews we first opted to undertake. Given that the research team could carry on field data collection only 4-5 days a week, therefore the actual sample we could recruit mounted 1487 subjects who have agreed to take part in the study. The first 5 adolescents on the daily appointment lists of each participating OPD would be selected. If the daily recruitment number was not secured from the first selection batch, the deficit may be completed from the second batch of five patients, and so on.

2.1 Data Collection and Study Variables

Three main tools were used to collect study data: a) interview with participants, b) the validated instrument "Youth Risk Behaviour Surveillance System" (YRBSS), [41] translated in Arabic language (and retranslated into English to ascertain accurate content and construct of the translated form), and c) reviewing participants' medical records (upon permission) to confirm certain health data, where required. The Centers for Disease Control and Prevention (CDC)-adopted YRBSS instrument [41] was designed to monitor priority health risk behaviours in high school students at USA national level and individual states level. Surveyed behaviours include, but not limited to, injuries and violence; tobacco, alcohol and drug use; sexual behaviours related to unintended pregnancy and sexually transmitted diseases; unhealthy dietary behaviours; and physical inactivity. Our modified questionnaire was first validated to assure highest validity standard. Three referees: A community medicine consultant, a family medicine consultant, and a clinical psychology expert, all with experience in community health behaviour research were given the questionnaire to review and validate in terms, of face, construct, criterion, and content validity. All remarks and critiques in the returned questionnaire by the reviewing consultants were taken in consideration, and amendments and modifications of the questionnaire instrument were done accordingly. The finally modified questionnaire form consisted of 83 items (questions) in 8 major scales (e.g., personal and socio-demographic data; safety dimension; behaviours associated with violence/bullying, substance abuse and alcohol drinking, sexual abuse, feeding habits); each expresses pertinent content to ultimately address the study's scope of inquiry. The questionnaire takes approximately 35 minutes to record responses. The questionnaire session starts with a personal interview of the questionnaire administrators with participants in order to inform them of the nature and aim of the study and read directions. The parents' consent of minor individuals (children<18y of age) were asked before interviewing and admitting children to the study. (Besides, each child was also entitled to agree or disagree to participate). Otherwise older participants were asked to give their written consent before filling up the questionnaire. All participants were informed that their participation is voluntary and they could opt out of the study at any time without giving reasons, and without fear

of losing any healthcare privileges as a result of withdrawal. They were assured of the utmost confidentiality of the provided information and that only anonymous data about the study findings may be disseminated. Necessary QUH administration agreement and QUH “research ethics committee” approval to conduct the research were granted. All adolescents within the selected study’s age stratum who agreed to participate were included in the study and no individual would be excluded based on other demographic or general health condition criteria. Data were coded, entered to a Microsoft program with adequate backups until analysed. Only questionnaires with $\geq 70\%$ valid responses to relevant questionnaire items would be entered in the analysis. First, descriptive analysis was computed in the form of frequency and percentages, while mean \pm SD was used, where appropriate, for quantitative values. Non-parametric techniques, Chi-square test (or Fisher’s exact, where appropriate) would be most used to measure the strength of association between input categorical variables of interest. Three main independent demographic variables (age, gender, education and SES) would be tested against the study outcomes variables of interest: a) history of victimisation by physical violence during the past year, as defined earlier [6,7] b) substance abuse, as defined before [8,9] and c) sexual abuse, with types and definitions as herein earlier [11,10] Education-wise, participants may be classified as a) illiterate or elementary (primary) school student educated, b) preparatory/ secondary school educated, and c) college educated; whether or not the degree had been earned earlier or a current student. Socioeconomic status level was made using a complex scoring system modified from the original “Fahmy and El-Sherbini” scale for socioeconomic rating of the Egyptian populations, [42] and its subsequent update [43] (The modified scale is based on a combination of demographic data, such as family income (all sources), economic possessions, parents’ education, parents’ occupation, housing condition, family size, access to health information). Final SES scaling in this research would be briefed into three levels, as low, middle, and more than middle/high SE class. In this study, too, there was an interest to examine the association between the candidates’ ABO blood groups and the odds of substance abuse. In case of consent for identifying blood type (and Rh), the candidates’ blood was tested through a finger-

prick. Common method of agglutination kit with antigens A, B and Rh was used and results were recorded in the questionnaire form. The SPSS software (SPSS Inc. PASW Statistics for Windows – Version-18.0; Chicago, Ill.) was used to conduct analyses [28]. Our tolerable level for rejecting a true null hypothesis would be $\alpha=0.05$, and results with p -values <0.05 were considered statistically significant.

3. RESULTS

Out of 1487 adolescents recruited, 1225 provided valid questionnaire responses and continued with the survey (response rate 82%). In Table 1, 58.9% (n=721) of participants were 17- $<$ 19y old, compared to 10.9% (n=134) of 19-21y of age and 30.2% (n=370) of 15- $<$ 17 years of age. 66.0% were male.

Most (56.5%)(n=808/1178) participants were preparatory/secondary school educated, compared to 15.2% (n=179) elementary educated and 28.3% (n=334) clothe highest socioeconomic class (18.2%) (n=189). As far as of physical violence within the last 12 months, 501/1039 individuals reported victimisation. Regarding sexual abuse, 330/1225 (27.0%) failed to respond to this question, while some (8.7%) (n=78/895) reported an exposure to a form of sexual abuse within the last 5 years. Out of 1005 respondents to substance abuse inquiry, 94 (9.4%) admitted this abusive behaviour.

Table 2 displays the violence exposure trend of the study population in the year prior to the study. The victimisation rate is analysed by age, sex, education, and SES. The younger the age the greater the victimisation rate of physical assault: adolescents 15- $<$ 17y old account 181/360 (50.0%), 17- $<$ 19y old account 281/422 (40.0%), and 19-21y old account 39/90 (30.2%) [χ^2 (df=2)=18.6, $p<0.0001$].

Male subjects tend to report higher rates of physical assault victimisation than female peers (400/870) (46.0%) vs. 110/322 (34.2%) [χ^2 (df=1)=13.4, $p<0.0001$]. The lowest SES was accompanied with the highest rate of victimisation to physical assault (213/487) (43.7%) while the difference in violence victimisation rate between the middle SES and higher SES was small (35.4% vs. 36.7%) [χ^2 (df=2)=6.8, $p=0.03$].

Table 1. Demographic criteria and risk exposure trend of the study group

Category	Level	n	%
Age (y) (n=1225) (Mean 17.3±2.3)	15-<17	370	30.2
	17-<19	721	58.9
	19-21	134	10.9
Gender (n=1225)	Male	808	66.0
	Female	417	34.0
Education (n=1178) (Missing 47) (3.8%)	Primary	179	15.2
	Preparatory/secondary	665	56.5
	College	334	28.3
Socio-economic status (within the past year) (n=1039) (Missing 186) (15.2%)	Low class	514	49.5
	Middle class	336	32.3
	>middle/high class	189	18.2
Violently abused* (n=1192) (Missing 33) (2.7%)	Positive	501	42.0
	Negative	691	58.0
Sexually abused ** (n=895) (Missing 330) (27.0%)	Positive	78	8.7
	Negative	817	91.3
Substance abuse (currently and/or in the past 3 y) (n=1005) (Missing 220) (18.0%)	Positive	94	9.4
	Negative	911	90.6
ABO blood group phenotype (n= 1155) (Missing 70) (5.7%)	A	457	39.6
	B	278	24.1
	O	302	26.1
	AB	118	10.2

*44 female and married. All reported husband abuse incidents

**Within the past 5 years

Table 2. Violence exposure and victimisation trend in the past year of the study group

Category	Level	Positive		Negative		Total (100%)	Test statistic	p-value
		n	(% raw)	n	(% raw)			
Age (y) (n=1192) (Missing 33) (2.7%)	15-<17	181	50.3	179	49.7	360	χ^2 (df=2) 18.6	<0.0001
	17-<19	281	40.0	422	60.0	703		
	19-21	39	30.2	90	69.8	129		
	Total	501	42.0	691	58.0	1192		
Gender (n=1192) (Missing 33) (2.7%)	Male	400	46.0	470	54.0	870	χ^2 (df=1) 13.4	<0.0001
	Female	110	34.2	212	65.8	322		
	Total	501	42.0	691	58.0	1192		
Socio-economic status (n=1039) (Missing 186) (15.2%)	Low	213	43.7	274	56.3	487	χ^2 (df=2) 6.8	0.03
	Middle	121	35.4	221	34.6	342		
	>middle	77	36.7	133	64.3	210		
	Total	411	39.6	628	60.4	1039		

Table 3 illustrates the sexual abuse victimisation trend of the study population and the same assumed demographic risk factors (age, sex, education, SES) as above. First, age was not a significant risk for sexual abuse victimisation in our study group. Although the sexual exploitation rate was directly related to the SES: low SES =52/465 (11.1%), middle SES= 19/279 (6.8%), higher SES= 7/151 (4.9%)], [χ^2 (df=2)=1.8, p=4]. Female participants were more exposed to sexual abuse instances than male peer: 49/325

(15.0%) vs. 29/570 (5.0%), respectively [χ^2 (df=1)=25.9, p<0.001].

In Table 4, among 1005 subjects those who responded to inquiring about substance abuse, older youths (19-21y) were more likely to report substance abuse (35/123) (284%), compared with 39/580 (6.7%) in those 17-<19, and 20/302 (6.6%) in those 15-<17 [χ^2 (df=2)=60.3, p<0.0001]. Male were more liable to abusing drugs than female counterparts: 72/650 (11.0%)

vs. 22/355 (6.2%) respectively [$\chi^2(df=1)=6.5$, $p=0.011$]. Substance abuse was directly associated with SES. The highest SES the highest substance abuse rate: low SES= 41/212 (19.4%), middle SES= 27/331 (8.2%), and higher SES= 41/212 (19.4%) [$\chi^2(df=2)= 33.1$, $p<0.001$]. The most common abused substances were:

Tramadol (70.2%), cannabis (31.3%), alcohol (20.1%), opiates (8.5%). (Most subjects reported

abusing more than one substance). (Table 4-footnote).

As in Table 5, 42.6 (n=49) of subjects who reported having history of substance abuse significantly had AB blood group [$\chi^2(df=3)= 132.9$, $p<0.0001$]. (Rh type was not included due to negligible number of Rh - negative candidates)

Table 3. Sexual abuse exposure and victimisation trend in the past 5 years of the study group (n= 895)

Category	Level	Positive		Negative		Total (100%)	Test statistic	p-value
		n	(% raw)	n	(% raw)			
Age (y)*	15-<17	28	10.2	246	89.8	274	$\chi^2(df=2)$ 1.25	0.53
	17-<19	36	7.8	425	92.2	461		
	19-21	14	8.8	146	91.2	160		
	Total	78	8.7	817	91.3	895		
Gender	Male	29	5.0	541	95.0	570	$\chi^2(df=1)$ 25.9	<0.0001
	Female	49	15.0	276	85.0	325		
	Total	78	8.7	817	91.3	895		
Socio-economic status	Low	52	11.1	413	88.9	465	$\chi^2(df=2)$ 7.9	0.018
	Middle	19	6.8	260	93.2	279		
	>middle	7	4.9	144	95.1	151		
	Total	78	8.7	817	91.3	895		

*Age 15-<17: 16/26(61.5%) boys; age 17-<19: 17/33(51.5%) boys; age 19-21: 4/11(36.4%) boys

Table 4. Substance abuse trend of the study group (current and/or in the past years) (n=1005)

Category*	Level	Positive		Negative		Total (100%)	Test statistic	p-value
		n	(raw %)	n	(raw %)			
Age (y)	15-<17	20	6.6	282	93.4	302	$\chi^2(df=2)$ 60.3	<0.0001
	17-<19	39	6.7	541	93.3	580		
	19-21	35	28.4	88	71.6	123		
	Total	94	9.4	911	90.6	1005		
Gender	Male	72	11.0	578	89.0	650	$\chi^2(df=1)$ 6.5	0.011
	Female	22	6.2	333	93.8	355		
	Total	94	9.4	911	90.6	1005		
Socio-economic status (SES)	Low	26	5.6	436	94.4	462	$\chi^2(df=2)$ 33.1	<0.0001
	Middle	27	8.2	304	91.8	331		
	>middle	41	19.4	171	80.6	212		
	Total	94	9.4	911	90.6	1005		

* Tramadol: 70.2%, cannabis: 31.3%, alcohol: 20.1% opiates: 8.5%. Most reported abusing more than one substance

Table 5. Distribution of substance abuse subjects by ABO blood group phenotype (n=1005)

		Substance abuse				Total	% total	Test statistic	p-value
		n	% +ve	n	%-ve				
ABO blood group	A	22	23.4	367	40.3	389	38.7	$\chi^2(df=3)$ = 132.99	<0.0001
	B	19	20.2	201	22.1	220	21.9		
	O	13	13.8	278	30.5	291	28.9		
	AB	40	42.6	65	7.1	105	10.5		
	Total	94	100.0	911	100.0	1005	100.0		

4. DISCUSSION

This study highlights important issues pertinent to adolescent victimisation to violent offenses affecting their physical, social, behavioural and mental health. In this work, the pattern of physical abuse, sexual abuse and substance abuse victimisation in their variable forms among adolescent populations in Qena has been identified and measured. Correlates congruent with these hazards have been revealed. The drastic implications of sexual assault not only disrupt the victim's integrity and their future life but decimate the entire family's image and morale. The situation becomes more catastrophic when the victim is a female person [34].

Gender and abusive actions: We found that 15.0% of female gave a positive response to inquiring about exposure to sexual abuse instances compared to 5.0% male counterparts at ratio of 3 to 1. In literature, too, girls have been consistently at higher risk for sexual abuse than boys at a ratio between 2.5 to 1 [44] and 3 to 1 [34]. However, the general prevalence of sexual abuse in our study of 8.7% may be less than that reported elsewhere. In the 2013 systematic review by Barth et al. to assess prevalence of CSA worldwide, 12 out of each 100 populations were victims of forced intercourse [45]. The difference between the multinational CSA prevalence and ours may be attributed to underreporting of CSA in Egypt, e.g., compared with European and North American countries included in the systematic review, due to the traditional constraints surrounding declaration of this type of crime, [34] which is pretty much conceived by affected families as a calamity.

The issue of gender-based violence (GBV) has been a focus of social health research, worldwide. For instance, 1 in each 3 women experience GBV in their lifetimes, and 35% of women suffer either physical violence from an intimate partner (with or without sexual assault) or non-partner violence [12]. Regionally, 20.9%, 31%, and 44.2% of adolescent girls in UAE, Egypt and Jordan, respectively suffer physical assault atrocity, [13,14,15] respectively. In our study, 42.0% of adolescents were harmed by physical violence, with male involvement outnumbering that of female involvement (ratio 1.4:1). Male-to female ratio of involvement in physical violence also showed male predominance, regionally, e.g., 1.3: 1 in Omani peers, [16] and 2:1 in UAE adolescent peers [13].

Provocative risks included history of bullying victimisation and depressive symptoms, while protective factors included supporting parenthood and helpful peers. Also underestimating the impact of violent behaviours by parents and often by school professionals enhances the complexity of the youth violence problem in our region and jeopardises the efforts spent in its combating. Another male predominance trend has been reported in substance abuse behaviour of our study group (male 11.0% vs. female 6.2% at a ratio of 1.8:1). Gender differences in the epidemiology, comorbidities, and treatment responses of substance abuse have been liberally described in adults [46]. However, a growing body of data suggests that gender differences also exist in adolescents. Yet, research is unfortunately still limited in this age group. Generally, males are more likely than females to use illicit drugs [47] and they are also more likely to overdose deaths. However, women are just as likely as men to become addicted, as well as go into relapse, which are key phases of the addiction cycle [48]. Boys and girls may respond to substance abuse prevention differently. Boys experience significant reductions in substance use rates relative to comparison youth in the short run; benefits for girls emerge later and endure throughout the study period [49]. In fact, illicit drug use as a particular type of abusive behaviour encompasses complex factors which extend beyond simple environmental and socioeconomic attribution for such abuse. Experimental studies of the response to cocaine in "gonadectomised" male and female rats provide evidence of neural evidence for sex differences in drug abuse [48]. These data indicate that there is an underlying sex difference due to sexually dimorphic development of the brain that, in part, mediates the sex difference in drug abuse. Studies from mice in which the testes-determining Sry gene is deleted from the Y chromosome and inserted in an autosome indicate that these sex differences in motivation may be genetic in origin. In particular, estradiol enhances the motivation to take drugs, while progesterone can counteract the effect of estradiol [50]. Ultimately research on the neurobiological mechanisms of sex differences in drug abuse will aid in improved treatment and understanding of drug abuse in both females and males.

Prevention-wise, well-designed and implemented prevention programs using multiple science-based components produced lasting reductions

in rates of substance use for both high-risk girls and boys relative to comparison youth [49]. However, programs that emphasise behavioural life skills topics are particularly important for girls. Importantly, programs for females only are no more effective in reducing rates of substance use for girls than mixed-gender programs, perhaps because the former tend to emphasise affective content, which is not associated with strong substance use outcomes. In the monograph using data from Center for Substance Abuse Prevention (CSAP) data and evaluating preventive programs focusing on gender differences in illicit drug and alcohol use, findings suggest that girls report more family supervision than boys, which may reduce opportunities to use substances [49]. Use by adolescent boys was more strongly related to neighborhood social environments that may increase opportunity to use. Connectedness to family and connectedness to school are important protective factors for both boys and girls.

Age and abusive actions: Our sexual abuse data indicate that 8.7% of those who responded to sexual abuse inquiry were victims; while 27.0% (n=330) of participants gave a blank or an invalid response to this particular question. Stoltenborgh et al. (2011) found that for boys, the prevalence of CSA was higher in low-resource societies than in high-resource ones; no significant effects of the economic development level emerged for girls [51]. Despite the frequent comparability, and often agreement, between our findings regarding the prevalence and influence of some of the studied personal and social risk factors on the involvement in violent acts, such as age, [14,52,53] some of these studies envision violence from the victimisation point of view [25,26] same as ours, while others envision it as bipartisan where two parties get into physical fight or so, regardless the intention, who was the abuser and who was the abused. In the national Egyptian survey, [14] compared to those who did not report being involved in physical fighting, those who had been involved in physical fights were younger. In our study, the younger the age the greater was the tendency for involvement in physical violence victimisation. A violent behaviour may well grow in association with underlying factors, some of which derive from the wide surrounding societal, political, and economic atmosphere, and some may be related to both personal adolescent traits, and the immediate circle around the youth. The consequences of such violent behaviour may

persist into adulthood life of the affected youth. [19,20] However, not all adolescents submit to intimidations of violent behaviour, e.g., 58% of our study population did not report such exposure. This should draw the attention to such micro-level factors which exert influence either as risk or protective factors. For instance, violent youths who have violent parents are far more likely to have modeled their behaviour on their parents' than simply to have inherited it from them. Likewise, society's differing expectations of boys and girls (e.g., expecting boys to be more aggressive) can result in learned behaviours that increase or decrease the risk of violence [52]. Therefore, a better understanding of the personal and social factors which can be related to violence in adolescents is important to violence prevention in risk populations. With rates of non-fatal injuries resulting from violent behaviour starting to increase during adolescence, [52,53] violence prevention programs geared towards adolescents are critical to protecting the well-being of this demographic.

Youth transitioning into adulthood have some of the highest rates of alcohol and substance abuse, worldwide, e.g., in 2010, 5% of the world's population used an illicit drug and in 2014 there was an estimated 1 in each 20 adults between 15 and 64 years of age who used at least one drug; and over the 29 million who suffer from drug use disorders, 12 million were "people who inject drugs" (PWID) (of whom 14.0% live with AIDS/HIV) [21]. Further, drug use among youths was much higher than rates reported by adults, e.g., they are three times as likely to use marijuana, and five times more likely to engage in illicit drug use [22]. In our study 9.4% participants admitted drug abuse [54,55], e.g., compared with 8.5% substance abuse rate among 15-25y old Egyptians nationally [24]. Our study drug users mostly used tramadol (70.2%) and cannabis (31.3%) and least to use were alcohol and opiates (20.1%, 8.5%, respectively), compared to cannabis derivatives (93.5%), alcohol (22.6%), pharmaceutical drugs (11.7%), and opiates derivatives (7.3%) at the natural level [24]. Comparably, too, 8.8% of 13-18 y- old school children in Zagazig, Egypt were drug abusers; and the most common substances used included tramadol (83.3%), cannabis (27.8%) and alcohol (16.7%) [26]. Internationally, there were more patients seen at the emergency rooms in the 21-to-24-year-old age group than for the 12-to-17-year-old or 18-to-20-year-old groups for marijuana, cocaine, heroin, and illicit stimulants [56]. (As far as synthetic

cannabinoids, 18-20y old group reach 6.1%, e.g., compared with 3.0% in younger age group). A study on 15-18 year old adolescents in Riyadh, 4.5% of studied adolescents 6.4% reported illicit drug use (and 8.0% reported illegal sexual practice) [57]. The 2014 rate of past-month illicit drug use among US youth was 37.9% in those age 14-15 and 16.5% in those 16-17 [58]. In comparison, the rate of drug use among adolescents 15-<19 years of age in our study ranged between 6.6% and 6.7%. The highest rate of illicit drug use was among American youth ages 18-20 (22.7%), compared with 28.4% in our group aging 19-21 [58]. Other studies also show that illicit drug abuse rises with age until it peaks at those around 18 to 20 years old. After this, it decreases steadily as people get older [59]. In the study from Thailand on the relationship between age and substance abuse and outcome of rehabilitation programs offered, [59] the average age for first drug use among admissions to substance abuse treatment facilities was 18.6 years. Among these patients, 14% started to use drugs (23% marijuana, 9% stimulants, 5% opiates, 4% cocaine) prior to age 13. Most of underage drug users were referred to treatment programs catering for their drug use problem, however, this did not lead to reduction in their readmission rate and their tendency to use remained in spite of spending time within these drug treatment programs. It was concluded that the earlier age of starting drug use the more liability of progressing to drug dependence [59]. While drug and alcohol abuse can be more common among those who are in the middle stages of their lives or beyond, they may be turning to substances to cope with loneliness when faced with divorce, the death of a partner, or children leaving the home. Likewise, many do the same to cope with depression, something that is more common among younger age groups. Although today's youths drink far less than earlier generations; there still is room for underage drug use, which is often blamed on peer pressure from the digital age. In one survey adolescents aged 12 to 17 years old, 75% (n=753) reported feeling influenced to engage in drug or alcohol use whenever they would see pictures on social media sites of their peers doing such [60]. Thus, peer pressure might not always come in the same form as it did for earlier generations, but it is still alive.

NB. In the analysis plan, there was a vision to measure the effect of education on the probabilities of the study outcomes. However, with the early results we found that most subjects

(1148) (96.2%) had education exposure. Further, the majority of those aging 15-17 were school students and their current school level more or less matches their age stratum. Therefore, education was removed from further analyses, as age alone would be able to represent both education and age in assessing their effect upon the adolescents' liability for violence abuses and involvement into substance abuse behaviour.

Socioeconomic status and abusive actions:

The prevalence rates of adolescent interpersonal violence in Egypt are similar to rates in other low –and middle-income countries (LMICs) [61]. In comparison, our adolescents of low-income adolescents were at greater risk (43.7%) for physical violence victimisation than other SES populations. As important as any individual factor; however, is the accumulation of risk factors. Risk factors usually exist in clusters, not in isolation. Children who are abused or neglected, for example, tend to be in poor families with single parents living in disadvantaged neighborhoods beset with violence, drug use, and crime. Studies of multiple risk factors have found that they have independent, additive effects, that is, the more risk factors a child is exposed to, the greater the likelihood that they become violent. One study, for example, has found that a 10-year-old exposed to 6 or more risk factors is 10 times as likely to be violent by age 18 as a 10-year-old exposed to only one factor [91=62]. This may explain why in some studies, as in ours and in Celedonia et al. [27=14] younger adolescents are more involved in violent actions while in other studies [62] older adolescents are at more risk of violent involvement.

We aimed to explore the link between substance use during adolescence and SES, the time when substance use tends to peak [59]. As in this work, too, equivalent background SES indicators, including family income, wealth, and parental education, were used to describe the patterns for substance abuse (including smoking, alcohol consumption, and marijuana use) among young adults. Although functional relationships across SES measures varied, prominently, young adults with the highest family background SES were most prone to alcohol and marijuana use. Several other studies came to comparative findings regarding substance abuse trend among teenagers and adolescent populations [63,64]. We, too, reported a significant increase in drug use tendency among the higher SES group of our study population. Children of more affluent

families may be at greater risk for engagement in anxiety- and depression-related substance use [63,64]. Luthar [63] has suggested that risk may increase for children in affluent families because they experience greater achievement pressure combined with isolation from parents who have careers that are more demanding. In addition, parents in high-SES families compared with those in lower SES families may have attitudes that are more tolerant toward substance use [63]. Unsurprisingly, higher family income can be associated with an increased ability to purchase substances and to have social associations with others who also have financial resources. On the other hand, lower income may be related to substance use as a coping mechanism because of increased stress and less access to alternative activities. Although CSA affects all social classes; there is evidence to show that the risk of abuse is higher in lower SES groups [65]. A pattern consistent with the occurrence of mostly among lower SES adolescents in our study has been found. A study of 541 private college girls in Ethiopia published in 2013 only found that survivors whose childhood background was from rural areas were more likely to have had sexual violence [66]. A study in Mexico (2004-2005) of student aged 12 to 24 years examined for the influence of selected socio-demographic and economic factors among other parental behavioural traits on sexual exploitation of adolescents found that subjects with least inconvenient SES, including poor paternal support were at greater risk for reporting both attempted and consummated sexual abuse incidents. Importantly, too, most victims tended to not report abuse [67]. On the other hand, a large survey using datasets from "Demographic and Health Surveys" in sub-Saharan African countries (2003-2007) were used to access the relationship between CSA and SES. However, SES was not a significant predictor for CSA [68]. There was an interest to identify the relationship between substance abuse.

5. CONCLUSIONS

The current work presents a focused analysis of abusive behaviours among Egyptian youth in a traditional social environment in southern Egypt. Most previous adolescent abuse studies among Egyptians were specific to one type of abuse. The research has faced some limitations. Attempting to admit a greater number of participants to the study to embody a population-based survey was hampered by the frequent hesitation to join in view of the culturally sensitive

nature of the addressed information. However, we able to depict valid data about major abuse forms compiled which jeopardise the youth's physical and social health till to date. The risk for violent behaviours found among adolescents is on the rise, reflected by violence abuse victimisation rates notably higher than those reported during the few years prior to the study. Substance abuse also parallels the patterns recorded during the same time interval. Reported sexual abuses incidence found were apparently as low as those reported earlier. Persistence of societal constraints hindering objective handling- rather than concealing- of this problem seems to be sustained. Evidence and explanations for the role of potential correlates behind the studied risks has been also provided in this work. International experience shows a remarkable success first in achieving effective control of children and adolescents' involvement in abusive acts and recovery from their health and social implications. These successes embraced school-community-based education, parental support, family empowerment and legal backup to face threats and social constraints coming in the way of maintaining children's safety optimistic future. Adopting preventive and remedial policies in Egypt assuring broad coverage of risk groups, incorporating the family, educational system, finance agencies, legal bodies and volunteer work are awaited. Findings from this research are a valuable source of data to initiate a national screening system to monitor adolescent's unlawful behaviours to lessen the suffering of the youth as a result of these ailments. Particularly factor standing as a significant correlate with the addiction tendency should be considered in developing preventive and rehabilitation policies of drug abuse among risk groups. Such association warrants further research, e.g., to elucidate the genetics and immunological backgrounds of addiction and other possible physiological and biochemical correlates.

CONSENT

The parents' consent of minor individuals (children <18y of age) were asked before interviewing and admitting children to the study. (Besides, each child was also entitled to agree or disagree to participate). Otherwise older participants were asked to give their written consent before filling up the questionnaire. All participants were informed that their participation is voluntary and they could opt out of the study at any time without giving reasons, and without fear

of losing any healthcare privileges as a result of withdrawal.

ETHICAL APPROVAL

Necessary QUH administration agreement and QUH "research ethics committee" approval to conduct the research were granted.

QUESTIONS

Does victimisation by abusive behaviours of a culturally sensitivity nature constitute a significant health problem in Qena adolescent population? What risk factors can be influencing this problem?

FINDINGS

In this survey, victimisation to violent and sexual behaviours as well as experiencing substance abuse threat, among adolescent populations in Qena region has been found. Associated risks include socioeconomic inconveniences, many of which can be preventable.

MEANING

Given the current trends and obstacles of the studied abusing behaviours, a large-scale survey dissecting the psychological makeup of adolescents allows early detection of the socially concealed aggressions and improves the opportunity for better health outcomes of victims.

DISCLAIMER

The findings and conclusions in this report are those of the author and do not necessarily represent the official position of any formal health organisation. Use of any selected procedures or techniques is for specification only and does not imply endorsement by official scientific, health or research institutions.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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