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ABDULLAH SABER ABDULLAH ALSHAMMARI

RISK AND PROTECTIVE FACTORS APPROACH TO MIDDLE AND HIGH SCHOOL STUDENTS' HEALTH BEHAVIOR IN JORDAN

SUMMARY OF Ph.D. DISSERTATION

SUPERVISOR:

PROF. DR. BETTINA PIKÒ

University professor

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THE STRUCTURE OF THE DISSERTATION

The dissertation will consist of six chapters. The first chapter will introduce the study in general, the research problem, highlight the significance of the study, and describe the context of the study. The description in this chapter provides information about the way the dissertation is organized. The second chapter is a literature review, in addition to collecting, organizing, analyzing, and evaluating the relevant publications regarding the risk and protective factors of health behavior among school students. The following topics are discussed: 1) Biopsychosocial approach to adolescence; 2) Adolescent health behavior; 3) Adolescent mental health; and 4) The application of the risk and protective factors theoretical model. The third chapter presents the research hypotheses, the aims and the structure of the empirical studies, also it discusses the research questions. The fourth chapter describes the research methodology used in the empirical studies. This includes the research design, sampling, instruments, data collection procedures, and the type of analysis used.

The fifth chapter contains the five empirical studies. Each study is discussed in detail, following the order of the research questions presented in chapter four. The first study is a pilot one aimed at investigating how social support (support from family, friends, and significant others) is related to mental health outcomes among a sample of Jordanian adolescents. The second study is also a pilot one aimed at getting a preliminary insight into social inequalities in adolescents' health, and test inequality (using parental education, and family affluence) in students' health behaviors (namely, their dietary habits and hygienic behavior) and certain indicators of mental health, such as depression, self-esteem, and life satisfaction. The third study is aimed at investigating how these school climate dimensions are related to Satisfaction With Life (SWL) among Jordanian high school students.

In the fourth study, Jordanian adolescents' mental health and well-being is examined, including their depressive symptoms, self-esteem, and life satisfaction. Besides descriptive statistics, bivariate associations, and multiple regression models are used to detect connections between these mental health outcomes and their associations with social support from family, friends, and significant others. In the fifth study, we will examine a number of social inequalities (namely, gender, parental education, and family affluence) and their relationship to student's health patterns, such as dietary habits, hygienic behavior, physical activity, and smoking, among Jordanian adolescents. The sixth chapter includes the conclusion from the discussion of the findings in the five studies. Additionally, the recommendations, suggestions and limitations for each study are illustrated for further improvement.

Table 1 The study variables

Health behavior	**Risk factors**	**Protective factors**
Tobacco use	Gender	Self-Esteem
Physical health	Age	Satisfaction with life
Dietary behavior	Paternal education	Social support (Family, friends, and others)
Personal hygiene	Income	School climate
Depression		

THEORETICAL BACKGROUND

The educational and prevention programs have taken a great deal of attention by researchers. In a number of studies, the risk and protective factors of health behavior among school students get priority. The considerable impact of health behavior among school students resulted in a high demand to study the effectiveness of risk and protective factors on school students' health behavior. The purpose of this study is to explore the risk and protective factors that may contribute on health behaviors and mental health among Jordanian school students. In addition, this study compares the levels of risk and protective factors and the predictive influence on these factors (tobacco use, physical health, dietary behavior, personal hygiene, depression, satisfaction with life, and self-esteem).

Biopsychosocial approach to adolescence

The biopsychosocial model proposed by Engel (1977) states that interactions between biological, psychological, and social factors determine the cause of wellness and disease. According to this model, any single factor is insufficient to cause disease, and it is caused by the interaction of biological, psychological, and sociological factors (Engel, 1977). For example, a person may have a genetic predisposition for diabetes, but they must have social factors, such as extreme stress at work, as well as psychological factors, such as severe anxiety. Another example, when a person may start smoking his/her addiction can be due to biochemical factors (elevated dopamine level) and heritability (genetic susceptibility), but they may also have social factors, such as peer pressure, as well as psychological factors, such as lower self-or stress.

Adolescent health behavior

Certain health risk behavior that may lead to serious health consequences are more prevalent in adolescence, such as smoking cigarettes, poor dietary habits, physical inactivity, or substance use (Ortega et al., 2013; Idowu et al., 2018). This is one of the important reasons that cause diseases in advanced age because these health risk behaviors persist in adulthood (Larsson et al., 2016). Unfortunately, a large number of teenagers do not care about the correct directions for healthy behavior (Visser et al., 2015). Furthermore, there are many studies that have found that health risk behaviors often occur simultaneously (Visser et al., 2015; Azeredo et al., 2016; Serra-Majem et al., 2015), which may, in turn, substantially increase health risks during life stages (Bassuk & Manson, 2013).

For successful prevention from multiple health risk behaviors among adolescents, there must be a deep insight into the patterns and predictors of these health risk behaviors. There are many theories that have been used to explain the behavior of individuals by managing individual and environmental factors (Jessor, 2017). These theories suggest that the social environment plays an important role in the development of health risk behaviors (Elgar et al., 2015).It is proven that there is a relationship between an individual or multiple health risk behaviors among adolescents and parental health behaviors, and low socioeconomic status (Serra-Majem et al., 2015; Khan et al., 2017;Garriguet et al., 2017).

Risk factors with health behaviors and mental health

The World Health Organization defined the risk factors as conditions or characteristics associated with an increase in the likelihood of negative outcomes (WHO, 2019). Risk factors that have concurrently been associated with health behavior problems and mental disorders in many studies of adolescents include gender, age, paternal education, unemployment, income, social norms, race/ethnicity (Zehni Moghadam et al., 2017; McKelvey et al., 2015; Smadi, 2017; ALBashtawy, 2017; Dardas et al., 2018; Raheel, 2015) .The literature reveals a strong interest in health behavior studies. There is no exception when it comes to the relationship between risk factors and health behaviors. In Jordan, the considerable impacts of this type of study have undoubtedly yielded the need to study how risk factors affect health behaviors among Jordanian adolescents. Also, the relationship between risk factors and mental health is an important element for the foundation for preventive interventions. Even with many studies for risk factors and mental health, we still need more research that seeks other potential markers and causal risk factors.

Unhealthy eating behaviors including skipping breakfast, low intake of fruit and vegetables, fast-foods, and sugar-sweetened drinks are particularly common characteristics of many adolescents' diets (Musaiger et al., 2014), and have a significant correlation with many risk factors. Many risk factors are playing an important role in physical activity among adolescents such as sex, age, ethnicity, parental education, family income, and socioeconomic status (Sterdt, Liersch, & Walter, 2014).The prevalence of tobacco use increased among older adolescents than others, and adolescent boys were more inclined to smoke than adolescents girls (Zhang et al., 2018; Gaffar et al., 2013).Various risk factors were associated with poor oral and hand hygiene including age, gender, regional disparity, family income, father’s education, mother’s education,

and several siblings (Shaikh, 2015; Peltzer et al., 2016; Ibrahim et al., 2018; Smadi, 2017; Qorbani et al., 2016).

As stated previously that depression can affect anyone regardless the age, race, or social status. Depression is a common cause of mental illness and disability worldwide (WHO, 2017). Depression is affected by different risk factors including age, sex, parent education, and family income (Avenevoli et al., 2015; Khademalhosseini et al., 2015; Dardas et al., 2018; Raheel, 2015). The prevalence of depression increased among females adolescent than males adolescents (Avenevoli et al., 2015).In summary, most of the reviewed studies in this section concluded that unhealthy behaviors are associated with several sociodemographic risk factors such as age, gender, regional disparity, family income, father's education, mother's education, and the number of siblings.

Protective factors

Protective factors are conditions that improve the likelihood of positive outcomes among individuals, families, communities, or society and reduce the likelihood of negative consequences (CDC, 2018). Many of the researchers use the Ecological models of health behavior to guide programs to changing behaviors that will reduce health problems among people. The Ecological models include four levels: (1) Individual level, (2) Relationship level, (3) Community level, (4) Societal level (Sallis et al., 2015). In this research, we identified several protective factors for health behavior among school students in three major domains: individual, family, and school.

Within the individual domain: The role of self-esteem and satisfaction with life in adolescent health behavior

Low self-esteem may be a potential risk factor for eating-disorder behaviors, but high self-esteem is one of the important protective factors against them among adolescents (Micali et al., 2015; Haynos et al., 2016; Iannaccone et al., 2016).Many studies found a positive relationship between physical activity and self-esteem (Liu, Wu, & Ming, 2015; Maher et al., 2013). Self-esteem plays an important role as a protective factor for a lifestyle without physical activity. High self-esteem protects adolescents from physical inactivity during the transition to adulthood (Carter, 2018).There are various factors influencing smoking behavior among adolescents (Talip et al., 2016). Adolescent smokers who have weaker self-esteem are more likely to smoke regularly in adulthood (Saari et al., 2015). One of the important protective factors against tobacco smoking in adolescents is high self-esteem (Abreu-Gutiérrez & Suárez-Lugo, 2018; Lauzon et al., 2016).

Life satisfaction, as an important measure of well-being, is a global judgement of one's life (Levin et al., 2012). A number of factors influence adolescent satisfaction with life including but not limited to emotional, social and behavioral constructs (Proctor, Linley, & Maltby, 2009). We usually find gender differences in levels of life satisfaction: although in most cases boys are more satisfied (Goldbeck et al., 2007), some studies report the reverse (Al-Attiyah & Nasser, 2016). Likewise, age can be an important factor affecting life satisfaction: younger adolescents are usually more satisfied with their life (Badri et al., 2018), while the older ones have more identity problems and they are less satisfied (Goldbeck et al., 2007; Kroneman et al., 2009). Besides age and gender, family affluence (social status) also associated with adolescent life

satisfaction, as well as other familial variables, like parent-child communication or family structure (Levin et al., 2012).

Enhancing adolescents' protective factors helps them avoid or minimize exposure to mental disorders. Satisfaction of a person's life and self-esteem is considered a protective factor from depression. Where adolescents who have low life satisfaction and self-esteem are more likely to experience a higher level of depression (Buck et al., 2012;Okwaraji et al., 2015).

Within the family and peer domain: The role of social support in health behavior and mental health

There are some evidences supporting the association between peer pressure, parental supervision, family income, and parental education with eating behavior (Alfoukha et al., 2017; Karinauskiene et al., 2015; Zehni Moghadam et al., 2017). The risk of eating disorders is highly prevalent among adolescents who have negative family and peer pressure, lower paternal education, and low family income (Karinauskiene et al., 2015; Ford et al., 2016; Alfoukha et al., 2017). Family support is associated with increased healthy eating among adolescents (Di Noia & Byrd-Bredbenner, 2013). Adolescents with eating disorders' history in their family or among friends have an increased risk of eating disorders among adolescents (Mousa et al., 2010). On the other hand, a study found no relationship between friend and parent support and healthy eating (Anderson Steeves et al., 2016).

Mental disorders not only impact adolescents directly but also the lives of their caregivers: having an adolescent with mental disorders is highly stressful and places a significant burden on the family members. These burdens can be physical, psychological, and economic which in turn, have a negative impact on the family, peer network, and the larger community as a whole (Souza et al., 2017). Particularly, since during adolescence there is a restructuring of the role of social connections (peers, parents) and we should know more about resilient adolescents for whom this process seems most successful (Tomás et al., 2020). Social support has been defined as assistance that can be useful, either through a material or emotional assistance to a person including that which comes from the family, friends, school staff, social organizations, and online social networks (Camara et al., 2017; Olsson et al., 2016). The lack of social support in any of these dimensions may lead to an increased risk of poor mental health outcomes among adolescents (Ringdal et al, 2020; Ronen et al., 2016).

Within the school domain: The role of school climate in health behavior and mental health

The school climate plays an important role in a positive influence on adolescents' healthy eating behaviors such as fruit and vegetable consumption. School nutrition policy can decrease unhealthy habits which lead to a lower risk of overweight and obesity among adolescents (Seo & Lee, 2012).There are many school environment factors associated with physical activity among adolescents including physical, social, and policy (Atkin et al., 2015). Break time, facilities, and teacher behaviors, where these factors lead to an improved adolescent physical activity (Atkin et al., 2015).

School climate plays a crucial role in enhancing the knowledge and practices of personal hygiene among adolescents. which leads to a decreased risk of communicable diseases among adolescents (Mulubirhan & Abera, 2014). Good school commitment (student's good grades and school attendance) is associated with a minimum usage of tobacco among adolescents (Gaete et al., 2015). On the other hand, the adolescents who did not attend school were more inclined to smoke (Zhang et al., 2018).

School climate remains one of the most effective protective factors against aggressive and violent behavior, and bullying (Espelage, Low, & Jimerson, 2014; Lyons et al., 2014; Suldo, Shaffer, & Riley, 2008), dropout, absenteeism, truancy, and drug use among adolescents (Heffner & Antaramian, 2016); it contributes to the improved health status of adolescents, along with marked declines in health risk behaviours (Gautam & Punia, 2017; Wang & Dishion, 2012). Positive school climate also has been found to be associated with decreased level of depressive symptoms among adolescents (Bradshaw et al., 2017; Shim-Pelayo & De Pedro, 2018).

METHODS OF THE EMPICAL STUDIES

Cross-sectional descriptive design was used to investigate study variables and answer the research questions. For pilot studies study 1 and 2 were conducted on 112 students aged 13 to 18 years. For study 3, 4, and 5 were conducted in 22 public and private schools in Irbid city located in the Northern of Jordan. The sample consisted of 2741 students, the boys and girls in grades 8th to 12th who are regularly enrolled in public and private schools in Irbid city, the student must be between 13-18 years of age. Multi-stage random sampling technique was used to recruit participants for this study. At the first stage, after using a simple random sampling technique by a lottery technique, a sample of four districts (Bani Obaid, Al-Ramtha, Irbid Qasabt, & Al-kora district) was selected from a list of all eight districts in Irbid governorate. And then it obtained the names and number of public and private schools in these districts.

These questionnaires were used to collect the required information; The modified Arabic version of Global School-based Student Health Survey(GSHS) (Al Qaseer & Batarseh, 2007), The School Climate Inventory (SCI) (Bekken et al., 2015), The Arabic version of The Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988; Merhi & Kazarian, 2012), The Arabic adapted version of the Diener's Satisfaction with Life Scale (Diener et al., 1985; Abdallah, 1998). The Arabic adapted version of the Rosenberg's Self-Esteem Scale (Rosenberg, 1965; Zayed et al., 2019), The Arabic adapted version of the Center for Epidemiological Studies Depression Scale for Children (CESDC) (Shahid et al., 2011; Abdo et al., 2016). The collected data were analyzed using IBM, SPSS statistics version 25.

Table 1 The samples, instruments, and Cronbach alphas for our five studies.

Studies	Samples	Instruments	Cronbach (α)
Study 1	112	• Socioeconomic status indicators. • Global School-based Student Health Survey, health behavior (tobacco use, personal hygiene, dietary behavior, physical activity) (GSHS, 2007). • Diener's Satisfaction with Life Scale (Diener et al., 1985). • Center for Epidemiological Studies Depression Scale for Children (Shahid et al., 2011).	.83 .85
Study 2	122	• Socioeconomic status indicators. • Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). • Diener's Satisfaction with Life Scale (Diener et al., 1985). • Rosenberg's Self-Esteem Scale (Rosenberg, 1965). • Center for Epidemiological Studies Depression Scale for Children (Shahid et al., 2011).	• .87 • .83 • .65 • .85
Study 3	2141	• Socioeconomic status indicators. • Diener's Satisfaction with Life Scale (Diener et al., 1985). • The School Climate Inventory (SCI) (Bekken et al., 2015).	• .85 • 70-88
Study 4	2741	• Socioeconomic status indicators. • Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). • Diener's Satisfaction with Life Scale (Diener et al., 1985). • Rosenberg's Self-Esteem Scale (Rosenberg, 1965). • Center for Epidemiological Studies Depression Scale for Children (Shahid et al., 2011).	• .88 • .86 • .68 • .84
Study 5	2741	• Socioeconomic status indicators. • Global School-based Student Health Survey, health behavior (tobacco use, personal hygiene, dietary behavior, physical activity) (GSHS, 2007).	•

RESEARCH AIMS

The dissertation consists of five empirical studies, building on one another. The first study is about the protective role of social support on determining adolescent mental health outcomes. The purpose of this cross-sectional pilot study is to investigate how social support (support from family, friends and significant others) is related to mental health outcomes among a sample of Jordanian adolescents.

Even though that there are many studies examined the relationships between social support and mental health, more research is needed to explore the nuanced associations between mental health and social support among adolescents, particularly in Jordan, where this topic has traditionally been under investigation. This pilot study is a vital part of a research project on the mental health and health behaviors among Jordanian Adolescents. In this study, the aim was to map Jordanian adolescents' mental health including depressive symptomatology, self-esteem and life satisfaction. Besides examining gender differences across these constructs, another attempt performed to detect bidirectional associations between these mental health indicators and social support from family, friends, and significant others and finally, using depressive symptomatology as a dependent variable.

The second study tested inequality (using parental education, and family affluence) in students' health behaviors (namely, their dietary habits, and hygienic behavior) and certain indicators of mental health, such as depression, self-esteem, and life satisfaction. The third study investigated how these school climate dimensions are related to satisfaction of life (SWL) among Jordanian high school students. The fourth study examined Jordanian adolescents' mental health and well-being including their depressive symptoms, self-esteem, and life satisfaction. Besides descriptive statistics, bidirectional associations, and multiple regression models are used to detect relationships between these mental health outcomes and their associations with social support from family, friends, and significant others. The fifth study examined a number of social inequalities (namely, gender, parental education, and family affluence) and their relationship to students' health behaviors (such as dietary habits, hygienic behavior, physical activity and smoking) among Jordanian adolescents.

MAIN RESULTS OF THE EMPIRICAL STUDIES AND THEIR DISCUSSION

Study 1. The protective role social support plays in determining adolescent mental health outcomes

Among the indicators of mental health, girls scored higher (M = 27.9; S.D. = 6.1) than boys (M = 27.9; S.D. = 6.1) on the satisfaction with life scale [t (110) = 4.3; $p < .001$]. No gender differences were found in levels of self-esteem and depressive symptomatology ($p > .05$). In terms of the social support variables, girls reported receiving more support from their families (M = 22.2; S.D. = 6.9) than boys (M = 18.4; S.D. = 5.9; t (110) = 3.6, $p < .001$). Although girls also reported receiving more support from significant others (M = 21.6; S.D. = 6.7) than boys (M = 19.3; S.D. = 6.1), this difference was not significant likely due in part to the small sample size [t(110 = 3.6; p = .060].

Correlation analyses results are shown in Table 6.2. Depressive symptomatology was negatively related to the life satisfaction variable (r = -.33; p < .001) and to family support (r = -.42, p < .001) as well as support from significant others (r = -.21, p = .026). Satisfaction with life was positively associated with all types of social support: support from friends (r = .33; p < .001), significant others (r = .46; p = .000); but the strongest correlation was found with family support (r = .67; p < .001). A positive correlation was also found between family support and self-esteem (r = .19; p = .045).

As the findings suggest, adolescents rely most on support from their families compared to other sources of social support. In the final model, a higher level of social support from the adolescents' family was consequently associated with a lower level of depressive symptomatology. Family support was found to be negatively associated with depressive symptoms for the whole sample as well as for the gender subsamples.

Study 2. A pilot study for socioeconomic inequalities in health among Jordanian adolescents

According to family affluence, those who assessed themselves as belonging to the highest group, reported the highest level of life satisfaction and the lowest level of depression scores. However, the differences proved to be statistically significant only in the latter case (F= 2,752, p= 0.046). In terms of self-esteem, those who were categorized as accepted reported the lowest level that differed from other categories (F= 3,806, p= 0.012).

Levels of life satisfaction significantly differed according to paternal education. Those whose father had secondary education reported the highest level (F= 7.37, p= 0.001). Self–esteem varied only in the case of maternal education. Students whose mothers were highly educated reported the highest level of self-esteem (F= 7.17, p= 0.001).

These findings are consistent with studies conducted in Jordan (Dardas et al., 2018; Ismayilova et al., 2013). There are different possible ways that poverty can increase the symptoms of depression among Jordanian adolescents. Low income affects children's health and emotional development through the decrease in purchasing power which meet their basic needs. Low family affluence may increase the vulnerability of adolescents to traumatic situations. It may also increase pressure and burden on parents which can lead to a change in their behavior and their children' health. Life satisfaction significantly differed according to paternal education, although the link is more U-shaped than linear. While some previous studies justified an association (Padilla et ail., 2016), other studies found only a limited role of parental education in children's life satisfaction (Crede et al., 2015). On the other hand, those with the best educated mothers reported the highest level of self-esteem. This finding is consistent with another study in Turkey (Şahin et al., 2013), whereas it was not proved in another study in Iran (Leila et al, 2013).

Study 3. A sex-stratified multiple regression on Jordanian adolescents' life satisfaction using different elements of school climate

For both genders, satisfaction with life was positively related to teacher responsiveness (r = 0.46, p < *.001* for boys and r = 0.35, p < *.001* for girls) as well and with positive mutual bonds (r = 0.42, p < *.001* for boys and r = 0.31, p < *.001* for girls) and with growth (r = 0.48, p < *.001* for boys and r = 0.24, p < *.001* for girls). While these subscales showed higher value for boys,

classroom atmosphere seems to play a role only girls' life satisfaction ($r = 0.12$, $p < .001$). On the contrary, disruptive behavior correlated positively with boys' life statisfaction ($r = 0.06$, $p < .05$), while for girls, the correlation was not signifcant.

The correlation analysis draws our attention to several gender differences and similarities in bivariate associations. First, in both genders, life satisfaction was positively correlated with teacher responsiveness, positive mutual bonds and growth. However, girls' life satisfaction showed a positive relationship with classroom atmosphere, while boys' satisfaction with life was associated with disruptive behavior. In addition, while disruptive behavior was positively correlated not only with life satisfaction but also with positive mutual bonds among boys, it was negatively correlated with positive mutual bonds and growth among girls. Although some of the studies came to a result that low level of life satisfaction might elevate the risk of externalizing behavior in both genders (Lyons et al., 2014), boys might have a higher risk of problems with school engagement and achievement (Heffner & Antaramian, 2016) and internalizing behavior (Lyons et al., 2014).

Study 4. Social support and adolescent mental health and well-being among Jordanian students

Satisfaction with life was positively associated with all types of social support; but the strongest correlation was found with family support ($r = .63$; $p < .001$). Likewise, self-esteem was positively associated with all types of social support, and the strongest correlation was again found with family support ($r = .42$; $p < .001$). Also, depressive symptomatology was negatively associated with all types of social support; and the strongest correlation was once again found with family support ($r = -.46$; $p < .001$). Furthermore , depressive symptomatology was negatively related to the life satisfaction variable ($r = -.47$; $p < .001$) and to self-esteem variables ($r = -.46$, $p < .001$).

This result is similar to what previous Jordanian and Arab research find where improvement in adolescent life satisfaction is positively related to social support from family, friends, and others (Alorani & Alradaydeh, 2018; Lopez-Zafra et al., 2019). Adolescents with better support from parents and teachers were significantly associated with higher levels of life satisfaction (Blau et al., 2018). Furthermore, adolescents' self-esteem and social support exhibit a positive association; this finding is consistent with other studies that have reported higher levels of social support associated with higher levels of adolescent self-esteem (Bhat, 2017; Tahir et al., 2015; Kumar et al., 2014; Bum & Jeon, 2016).Also, this finding is consistent with previous studies which showed higher levels of adolescents' social support leading to lower levels of depressive symptoms (Ren et al., 2018; Chang et al., 2018; Kievit et al., 2016).

Study 5. Social differences in health behaviors among Jordanian adolescents

Being male was a significant factor contributing to both smoking cigarettes and physical activity compared to being female. Paternal education was not statistically significant in the case of either smoking or physical activity, while maternal education with primary school or less level was significant for smoking cigarettes. Finally, SES self-evaluation of being middle class was a significant factor for smoking cigarettes compared to students from upper/upper middle class. In terms of physical activity, being lower middle class or less and middle class were both significantly different compared to upper-middle or more.

Students from higher social classes were more engaged in smoking behavior than their counterparts from middle class. This is consistent with another study (Park & Hwang, 2017). On the contrary, adolescents with higher family affluence were more likely to participate in physical activities. This is consistent with a previous Jordanian (Obeisat & Gharaibeh, 2012) and other studies (Moradi et al., 2020; Park & Hwang, 2017). Although different types of health behaviors, a possible explanation can be common: youth having more spending pocket money can more afford using tobacco and visiting sports facilities (Soteriades & DiFranza, 2003). This can also be an explanation for having more chance to access to healthy foods, such as fruits and vegetables. On the other hand, for similar reasons, these adolescents have also more chance to smoke or consume more fast foods or carbonated soft drinks.

SUMMARY

These studies detected risk and protective factors that might contribute to health behaviors and mental health among Jordanian adolescents. This study adds to the body of knowledge regarding comparing the levels of risk and protective factors and the predictive influence of these factors on (tobacco use, physical health, dietary behavior, personal hygiene, depression, satisfaction with life, and self-esteem). Studies 1 and 2 are pilots' studies as vital parts of our research project on the mental health and health behaviors among Jordanian Adolescents. Studies 3,4 and 5 are covered all our project variables.

There is the essential need to study the sector of Jordanian school health services provided to school students, which is currently suffering from shortages and stagnation in health services due to difficult economic, political and social condition. The cost-effective interventions are needed to assess and apply proactive factors in school health education and the health promotion of the student to acquire the importance of knowledge regarding healthy behaviors, personal hygiene, balanced nutrition rules and attention to the environment which help them to integrate properly with their community. Furthermore, this study will drag the attention to focus more on the students' health behavior and mental health. The data of this study will help in establishing effective and efficient counseling and support intervention programs that will help in reducing students' unhealthy behaviors improve their quality of life and have greater control over their lives.

While we highlight several significant findings in this current work, there are limitations that should be noted and considered when interpreting these findings. General limitations for all studies: First, our study is cross-sectional which cannot provide a cause-and-effect relationship. This is a common limitation of many studies, which can only be overcome by longitudinal design. Second, self-reporting bias should be considered when determining levels of subjectivity among the participants. Third, the specific sample may lower the generalizability of the findings, although they provide excellent contributions to research in this cultural field as well as for multicultural societies. Fourth, some difficulties for controlling behaviors in the classrooms, especially for worried girls' students about answering sensitive questions such as smoking.

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