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Family cohesion and a father's warmth are related to the positive lifestyles of female university students

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ABSTRACT

One of the main strategies that healthy universities implement among their students is that of promoting healthy lifestyles. However, behind these healthy lifestyles, there may be some aspects related to family functioning that favour or limit its implementation. Consequently, the objective of this study is to establish whether there is a relationship between lifestyles and family cohesion, family ethnic socialization and the affective behaviour of the father and the mother. A cross-sectional study was conducted with a representative sample of 159 female university students from an indigenous area of Oaxaca, Mexico. The Healthy Lifestyle Scale for University Students, the Self-Assessment Scale of Affective Behaviour (with regard to the father and the mother) and the Family Cohesion Scale were used. Family ethnic socialization revealed a significant interrelationship with lifestyles in all ethnic groups. However, these scores were higher in the indigenous groups. Although the moderate hostility from the father did not show any relationship with lifestyles in either ethnic group, the scores for hostility from the father were higher in indigenous groups than in the mestizo group. A multivariate analysis confirmed better lifestyles when better family cohesion and greater warmth of the father were observed.

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Introduction

Family is the main social unit and has both consanguineous and affective bonds. It is in the family setting where long-lasting relationships are born, while at the same time patterns for future relationships are also established

therein. The family is responsible for the satisfaction of its members' affective needs and ensures their stability [1]. Thus, the family's affective behaviour plays an important role in the emotional and behavioural expressions of its members [1].

Low levels of family cohesion were found to be associated with behavioural problems in children [2]. Similarly, family

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aggression and harsh parenting trigger everyday life problems, while family cohesion minimizes any negative impact [3]. Better family cohesion in adolescent women influences the reduction of depressive symptoms during the transition period from middle school to secondary school; this relationship is mediated by changes in self-esteem and optimism [4]. Family cohesion is also inversely related to physical aggression [5], and it is a protective factor for generalized anxiety disorder [6].

Evidence also shows a relationship between some lifestyles and certain conditions within family dynamics. Lifestyles are conditions that can favour health or put health at risk. Lifestyle components pertaining to health include physical activity, food, daily behaviour, health risk behaviour, responsibility with regard to health, social support, stress management and appreciation for life [7–9]. Lifestyles change throughout the stages of life. The adoption of unhealthy lifestyles that has been observed during the period of university studies is an example of this [10].

High levels of family functioning lead to lower risk behaviours for health in adolescents [11]. Anxiety and depression symptoms during adolescence are associated with unhealthy lifestyles [12]. Adequate levels of moderate to vigorous physical activity in young women are associated with family cohesion [13], although another study in Mexican adolescents found no association between family structure, dynamics, physical activity and physical inactivity [14].

Family cohesion is an intermediary between parental problems with alcohol and externalized behaviour in adolescents (men and women) [15]. The proportion of adolescents or adults who start consuming alcohol is low in families where cohesion is high [16]. However, this association was not found in young Latinos [17]. Low levels of acculturation in women are associated with alcohol intake [18], and low levels of family cohesion and a diminution of family cohesion levels have been associated with the initiation of smoking habits in young offspring of Mexican families [19].

Differential treatment from parents is a common phenomenon in family dynamics, and it has been linked to the disruption of well-being during adolescence and youth [20]. In adolescent descendants of Mexicans, the perception of low parental warmth in comparison to their siblings' is associated with greater risk behaviours and depressive symptoms [20]. Although this association is observed when children are treated differently by both the father and the mother, said association is mediated by cultural socialization when the father treats differently [20]. For both siblings, the perception of differences in parenting diminishes the warmth between siblings, while higher warmth between siblings is associated with lower depressive symptoms [21].

In contrast, parents' warmth is directly related to the low internalization and externalization of problems in children, as well as higher academic achievements [22]. The presence of parental warmth can reduce the severity of depressive symptoms especially when the warmth of both

the father and the mother are consistent over a long period of time [23]. Low parental warmth is associated with a high incidence of the onset of alcohol consumption during adolescence and early adulthood, as well as the probability of being arrested in the following 8–14 years [24].

Harsh parenting discourages physical activity in adolescents and contributes to an increase in body mass index [25]. When health is at risk due to the emotional distance of one parent, even if the warmth of the second parent seems to protect the health of adolescent, the warmth of the second parent contributes to aggravating the association between the toughness of the first parent and the changes in body mass index BMI [25].

BMI is also associated with low parental warmth and high parental hostility [26]. Particularly in adolescent women, low parental warmth is associated with bulimic behaviours [27]. Meanwhile, the sense of belonging to an indigenous group (such as the Zapotec) has been associated with better eating habits [28].

Promoting healthy lifestyles is a strategy implemented among young university students. However, family is rarely included within these processes or even taken into account when designing programmes, despite the evidence that family functioning [29], family ethnic socialization [30], ethnicity [28], parental warmth [26] and family cohesion affect the incidence of obesity. That said, the evidence of the direct influence of family functioning on lifestyles is scarce in the mestizo population, and practically non-existent in indigenous Mexican people. Thus, it is only possible to derive a hypothesis from what is observed in terms of obesity.

In Mexico, there are 68 ethnolinguistic groups whit a total of 12,025,947 indigenous people that represent 10.1% of the Mexican population. Mexico is composed of 31 states, from which Oaxaca is the state with the largest number of indigenous inhabitants (1,734,658), representing 43.7% of the state population (Chart 1). The Zapotec, Mixe and Huave people are distributed throughout the country, but most of them live in Oaxaca. Oaxaca is the second state in importance regarding the presence of Zoque groups. Chontal people from Oaxaca are only found in this region [31].

Theoretical definition of the problem

Assuming that family harmony promotes healthy life styles, while a dysfunctional family is linked to hazards, family is considered as a decisive factor for the well-being of its members. Seeing the family as a symbolic space where interactions between genders and generations, and social and affective mediation take place [32] is a novel way to evaluate their association with healthy lifestyles. The analysis of how cohesion in families and affective relationships with parents influence the lifestyles of young women can provide helpful empirical evidence for the implementation of family theories in health promotion programmes, specifically in women from vulnerable groups such as indigenous groups.

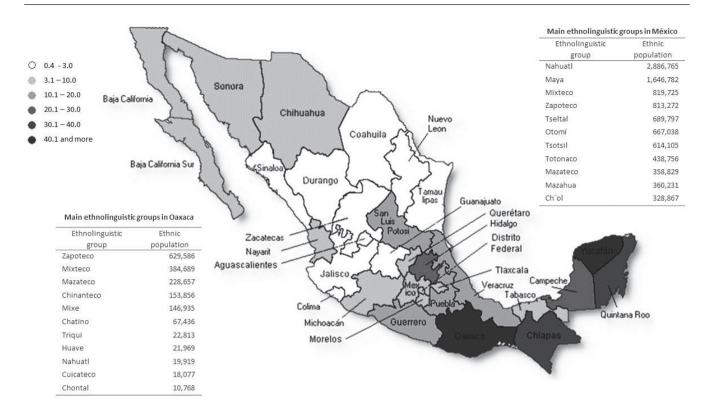


Chart 1 – The amount of people who belong to an indigenous ethnolinguistic group in each state of Mexico, according to the socioeconomic indicators of indigenous peoples in Mexico, 2015

Aim of the study

This paper aims to establish whether there is a relationship between lifestyles and family cohesion, family ethnic socialization and parental affective behaviour in a group of Mexican female university students who belong to an indigenous zone.

Materials and methods

Study design and participants

A cross-sectional study was carried out with a probabilistic sample of 159 female university students from Oaxaca, México. The sample size was estimated with a statistical power of 90% and a confidence level of 95%. The correlation coefficient to be detected between healthy eating and family cohesion was 0.25, as had been reported in a previous study [33].

An overall response rate of 96% from the participants was achieved, with a proportional representation of the different ethnic groups that make up the population. In the geographical area where the study was carried out, there is a predominance of Zapotec ethnic people, who coexist with Mestizos, Huaves, Chontales, Mixes and Zoques.

All students signed an informed consent to participate in the study, and the ethic commission approved the research protocol.

Instruments

The Healthy Lifestyle Scale for University Students, the Self-Assessment Scale of Affective Behaviour (with regard to the father and the mother), the Family Cohesion Scale, the Family Ethnic Socialization Scale, and a personal data form were used.

Healthy lifestyle scale for university students

The instrument contains 38 items divided into eight dimensions: Social support (6 items), Life appreciation (5 items), Regular behaviour (4 items), Nutrition behaviour (4 items), Exercise behaviour (4 items), Health risk behaviour (4 items), Stress management (5 items) and Health responsibility (6 items) [34]. The instrument uses a Likert-type response format on the frequency of the behaviours ("never", "rarely", "sometimes", "generally" or "always"), with scores ranging from 1 to 5 according to the Cronbach's alpha coefficient. This sample reported high internal reliability for the general scale (α = 0.855), and adequate values for the dimensions, except for stress management (α = 0.596) and health risk behaviours (α = 0.408), which proved low reliability.

Self-evaluation scale of affective behaviour

The instrument consists of 22 Likert scale items, organized into three dimensions: warmth (9 items), moderate

hostility (9 items), and extreme hostility (4 items) [35]. It can be conducted with any member of the family. The interviewee is requested to answer the questions considering the affective behaviour of a particular family member. In this case, the young female participants answered one scale for the mother and other for the father. In the case of the mother, Cronbach's alpha coefficient was adequate for moderate hostility (α = 0.799) and extreme hostility (α = 0.858), but low for the dimension of warmth (α = 0.595). In the case of the father, the three dimensions showed adequate reliability (warmth α = 0.706; moderate hostility α = 0.814; extreme hostility α = 0.805).

Scale of family cohesion, FACES II

The Scale of Family Cohesion is an 8-item Likert-type scale with no internal dimensions. The response options range from "almost never or never" to "almost always or always", with scores from 1 to 5 [36]. For the purposes of this study we decided to use this scale because it proved high internal reliability ($\alpha = 0.885$).

Family Ethnic Socialization Scale

The Family Ethnic Socialization Scale is a 12-item Likert-type scale with five response options ranging from "nothing" to "very much". It is composed of two dimensions: hidden family ethnic socialization (7 items), and evident family ethnic socialization (5 items) [37]. In general, internal reliability for the instrument was high ($\alpha = 0.918$), particularly in the dimensions of: hidden family ethnic socialization ($\alpha = 0.887$) and apparent family ethnic socialization ($\alpha = 0.866$).

Statistical analyses

The Statistical Package for the Social Sciences (SPSS) 18 was used to analyze the data. Frequency and central tendency measurements were used to describe the sample. Pearson correlations were calculated to identify associations between variables. The differences in family functioning among the different ethnic groups were compared with ANOVA. Finally, a multivariate model was built using linear regression considering lifestyles as a dependent variable.

Results

The mean age was 20.5 ± 1.6 years. Most participants were young women belonging to the Zapotec ethnic group who lived with their parents (Table 1).

The results suggest that the family ethnical socialization has a significant positive correlation with lifestyle, except for in the dimension of health risk behaviours. Similarly, family cohesion showed a correlation with lifestyles except health risk behaviour and physical exercise. However, the affective behaviour of both the father and the mother showed relationships with diverse lifestyles. The warmth shown by the father was the most frequently linked to lifestyle (Table 2).

Table 1 – Description of the sample								
Variable	n	Percentage						
Ethnic group								
Zapotec	106	66.7						
Mestizo	31	19.5						
Other indigenous ethnicities	22	13.8						
Students who live with their mother								
Yes	157	98.7						
No	2	1.3						
Students who live with their father	er							
Yes	130	81.8						
No	29	18.2						
Semester of the student								
Second	46	28.9						
Fourth	38	23.9						
Sixth	40	25.2						
Eight or higher	35	22.0						
Age (mean, SD)	20.5	1.6						
SD = Standard deviation								

The results suggest that family ethnic socialization has a significant interrelationship with the lifestyles in all ethnic groups. However, these scores were higher in the indigenous groups. Although a moderate hostility from the father reflected no relationship with lifestyles in some ethnic groups, significantly higher scores were observed in indigenous groups compared to those in mestizo women (Table 3).

Finally, the multivariate analysis indicated that lifestyles are better when family cohesion is high and the warmth of the father is great (Table 4).

Discussion

Family plays an important role in people's life as it shapes and generates effective bonds. The need for the family to be involved in order to promote of healthy lifestyles is evident since the very moment where the family beliefs on what healthy means establishes a firm foundation for the young adults to consolidate their path to achieve a better health. Some components of family functioning, such as cohesion, have proved to be linked to lifestyles in young people as they encourage physical activity [13] and protect against alcohol [15, 16] and tobacco consumption [19]. However, this evidence has not been reported in Latinos and the information available in groups of women is scarce. Thus, it is unknown whether ethnic socialization, parental affective behaviour or family cohesion influences the lifestyles of young women.

Along with the evidence from previous studies that indicate a higher proportion of healthy eating habits in young Zapotec women compared to other ethnic groups [28], this study identified that ethnic socialization and family cohesion were found to be more important for

Table 2 – Correlation between lifestyle subscales and family functioning								
	Family ethnic socialization	Family cohesion	Mother's warmth	Mother's moderate hostility	Mother's extreme hostility	Father's warmth	Father's moderate hostility	Father's extreme hostility
Social support	0.272 ^b	0.217 ^b	0.123	-0.138	-0.051	0.138	0.000	0.107
Life appreciation	0.195 ^a	0.294 ^b	0.269 ^b	-0.112	-0.173 ^b	0.200 ^a	-0.073	-0.134
Regular behaviour	0.188 ^a	0.241 ^b	0.128	0.074	-0.023	0.276 ^b	0.020	-0.117
Nutrition behaviour	0.269 ^b	0.258 ^b	0.041	-0.012	-0.004	0.298 ^b	-0.004	-0.155
Exercise behaviour	0.201 ^a	0.104	-0.028	0.026	-0.057	0.149	-0.045	-0.069
Health risk behaviour	0.064	0.007	-0.031	0.322 ^b	-0.079	-0.174 ^a	0.008	0.026
Stress management	0.161 ^a	0.389 ^b	0.276 ^b	-0.065	-0.173 ^a	0.210 ^a	-0.038	-0.162
Health responsibility	0.294 ^b	0.232 ^b	0.109	0.068	-0.012	0.211 ^a	-0.033	-0.070
^a p < 0.05; ^b p < 0.01								

Table 3 – Lifestyle averages and family functioning correlations by ethnic group								
	Zapotec (n = 106)		Mestizo ($n = 31$)		Other indigenous ethnicities (n = 22)			
	Mean ± SD	r	Mean ± SD	r	Mean ± SD	r	F	
Family ethnic socialization	36.1 ± 9.2	0.199 ^a	29.6 ± 9.8	0.362 ^b	35.1 ± 10.0	0.581 ^b	5.583 ^b	
Family cohesion	29.0 ± 6.4	0.333 ^b	26.1 ± 7.2	0.381 ^a	28.4 ± 7.8	0.398	2.206	
Mother's warmth	31.6 ± 4.8	0.146	32.7 ± 4.3	0.211	31.1 ± 6.2	0.414	0.851	
Mother's moderate hostility	19.6 ± 4.8	-0.152	18.3 ± 5.3	0.069	20.8 ± 5.6	0.023	1.705	
Mother's extreme hostility	5.1 ± 2.0	-0.085	5.4 ± 2.3	-0.196	4.9 ± 1.4	-0.292	0.452	
Father's warmth	26.3 ± 8.5	0.282 ^b	29.3 ± 8.5	0.510 ^a	25.8 ± 6.7	0.455	1.394	
Father's moderate hostility	18.7 ± 5.5	-0.046	14.8 ± 3.7	-0.050	20.3 ± 5.9	-0.133	6.893 ^b	
Father's extreme hostility	4.8 ± 1.8	-0.128	4.8 ± 1.8	-0.341	6.0 ± 2.7	-0.030	2.804	
^a p < 0.05; ^b p < 0.01								

Independent variables	В	Standard error	β	t	p
Constant	90.600	14.787		6.127	0.000
Family ethnic socialization	0.217	0.124	0.147	1.749	0.083
Family cohesion	0.498	0.199	0.236	2.505	0.014
Mother's warmth	0.117	0.303	0.039	0.387	0.699
Mother's moderate hostility	0.315	0.309	0.109	1.019	0.310
Mother's extreme hostility	-1.011	0.766	-0.140	-1.320	0.189
Father's warmth	0.441	0.161	0.255	2.735	0.007
Father's moderate hostility	0.123	0.274	0.047	0.449	0.654
Father's extreme hostility	0.274	0.812	0.037	0.337	0.735

indigenous girls than in mestizo girls. However, mestizo girls reported greater father's warmth when compared to the indigenous girls who suffer even greater hostility from the father.

Previous studies have reported authoritarian parenting styles in indigenous groups in Mexico. However, this authoritarian style was observed more in mothers [38]. Conversely, in our research the differences were found in

the father. These findings revealed the need to implement culturally adapted interventions to respond to the characteristics of each group and to family dynamics.

The present study found no association between health risk behaviours, including alcohol and tobacco intake, and family cohesion, but found that the other dimensions of lifestyles such as social support, appreciation for life, daily behaviour, nutrition, stress management and health responsibility, improve significantly as cohesion within the family increases.

Similarly, family ethnic socialization improves the dimensions of social support, appreciation for life, daily behaviour, nutrition, exercise, stress management and health responsibility. These results confirm the importance of cultural socialization on healthy lifestyles [20].

Although some evidence shows that differentiated parental treatment can have negative consequences on young people [20, 21], this study shows that in young women the extreme hostility of the mother decreases the appreciation for life and stress management- On the other hand, these dimensions improve with the warmth of the mother. These results are very much in line with a study that found out that low parental warmth is associated with bulimic behaviour [27]. Moreover, Fairley's research [26] indicates an association with increased BMI.

In the case of the father, his warmth improves appreciation for life, daily behaviour, nutrition, stress management, health responsibility and health risk behaviours. Although the behaviour of both the mother and the father seem to influence lifestyles, the multivariate analysis indicates that the role of the father is preponderant in young women. Identifying that the warmth of the father is associated with better lifestyles causes to focus on developing strategies for the role of the father, whose role has so far been underrepresented in both research and in interventions aimed to improve the health of children and young people [39]. This reveals the need to revalue and include the father as a key player in the promotion of healthy lifestyles in young women.

On the other hand, our results agree with the findings of previous research in that they highlight the need for interventions with the family to be culturally sensitive to the differences that may exist in different ethnic groups [5].

Limitations of the study

This study had some limitations that deserve further consideration. The ethnic groups were unbalanced in size so the differences that were found should be taken with some caution. This difference in size also limited the possibility of performing multivariate analyses by ethnicity. For further studies, larger samples are recommended to ensure that each group is equally represented.

On the other hand, two dimensions from the Healthy Lifestyle Scale for University Students shown low reliability (stress management and health risk behaviours). Thus, it is necessary to take the associations identified with these variables with caution. Finally, longitudinal studies are required to assess whether the associations found are causal.

Conclusion

Traditionally it has been the responsibility of women to provide guidance for self-care among all family members, but our results show that the father's warmth is also associated with healthy lifestyles of female university students. The findings of this research identify the father figure as a key player in influencing the lifestyles of young indigenous people with regard to their health. Traditionally, women have been responsible to provide family members with guidance for self-care, however, these results suggest that the father's warmth is associated with healthy lifestyles.

Consequently, strategies aimed at promoting healthy lifestyles among university students should be culturally adapted and involve working with the family based on the evidence of the differences between ethnic groups. Both family cohesion and affective behaviour are key aspects to consider when working with lifestyles of female university students, particularly the bond with the father.

Conflict of interests

The authors confirm that there is no conflict of interest in this study.

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REFERENCES

- [1] Chadda RK, Deb KS. Indian family systems, collectivistic society and psychotherapy. Indian J Psychiatry 2013;55(Suppl. 2):S299–309.
- [2] Lin X, Li L, Heath MA, Chi P, Xu S, Fang X. Multiple levels of family factors and oppositional defiant disorder symptoms among chinese children. Fam Process 2016. Doi:10.1111/famp.12269.
- [3] Kuznetsova VB. Family factors as moderators of link between reinforcement sensitivity and child and adolescent problem behaviour. Personal Ment Health 2015;9(1):44–57.
- [4] Guassi Moreira JF, Telzer EH. Changes in family cohesion and links to depression during the college transition. Journal of Adolescence 2015;43:72–82.
- [5] Henneberger AK, Varga SM, Moudy A, Tolan PH. Family functioning and high risk adolescents' aggressive behavior: examining effects by ethnicity. J Youth Adolesc. 2016;45(1):145–55.
- [6] Ai AL, Weiss SI, Fincham FD. Family factors contribute to general anxiety disorder and suicidal ideation among Latina Americans. Womens Health Issues 2014;24(3):e345–52.
- [7] Aghamolaei T, Tavafian SS. Health behaviors of a sample of adolescents in Bandar Abbas, Iran. Int J High Risk Behav Addict. 2013;2(1):34–8.

- [8] Musavian AS, Pasha A, Rahebi SM, Atrkar Roushan Z, Ghanbari A. Health promoting behaviors among adolescents: a cross-sectional study. Nurs Midwifery Stud. 2014;3(1):e14560.
- [9] Wang D, Xing XH, Wu XB. Healthy lifestyles of university students in China and influential factors. The Scientific World Journal 2013;2013:412950. Doi:10.1155/2013/412950.
- [10] Deliens T, Deforche B, De Bourdeaudhuij I, Clarys P. Changes in weight, body composition and physical fitness after 1.5 years at university. Eur J Clin Nutr. 2015;69(12):1318–22.
- [11] Cano MA, Schwartz SJ, Castillo LG, Unger JB, Huang S, Zamboanga BL, et al. Health risk behaviors and depressive symptoms among Hispanic adolescents: examining acculturation discrepancies and family functioning. J Fam Psychol. 2016;30(2):254–65.
- [12] Skrove M, Romundstad P, Indredavik MS. Resilience, lifestyle and symptoms of anxiety and depression in adolescence: the Young-HUNT study. Soc Psychiatry Psychiatr Epidemiol. 2013;48(3):407–16.
- [13] Bigman G, Rajesh V, Koehly LM, Strong LL, Oluyomi AO, Strom SS, Wilkinson AV. Family cohesion and moderate-to-vigorous physical activity among Mexican origin adolescents: a longitudinal perspective. J Phys Act Health. 2015;12(7):1023–30.
- [14] Lavielle-Sotomayor P, Pineda-Aquino V, Jauregui-Jimenez O, Castillo-Trejo M. Actividad física y sedentarismo: Determinantes sociodemográficos, familiares y su impacto en la salud del adolescente. Rev Salud Publica (Bogota) 2014;16(2):161–72.
- [15] Finan LJ, Schulz J, Gordon MS, Ohannessian CM. Parental problem drinking and adolescent externalizing behaviors: the mediating role of family functioning. Journal of Adolescence 2015;43:100–10.
- [16] Soloski KL, Kale Monk J, Durtschi JA. Trajectories of early binge drinking: a function of family cohesion and peer use. J Marital Fam Ther. 2016;42(1):76–90.
- [17] Reeb BT, Chan SY, Conger KJ, Martin MJ, Hollis ND, Serido J, Russell ST. Prospective effects of family cohesion on alcohol-related problems in adolescence: similarities and differences by race/ethnicity. J Youth Adolesc. 2015;44(10):1941–53.
- [18] Wilkinson AV, Shete S, Spitz MR, Swann AC. Sensation seeking, risk behaviors, and alcohol consumption among Mexican origin youth. J Adolesc Health. 2011;48(1): 65–72
- [19] Rajesh V, Diamond PM, Spitz MR, Wilkinson AV. Smoking initiation among Mexican heritage youth and the roles of family cohesion and conflict. J Adolesc Health. 2015;57(1):24–30.
- [20] Padilla J, McHale SM, Updegraff KA, Umana-Taylor AJ. Mexican-origin parents' differential treatment and siblings' adjustment from adolescence to young adulthood. J Fam Psychol. 2016. Doi:10.1037/ fam0000229.
- [21] Ponappa S, Bartle-Haring S, Holowacz E, Ferriby M. The family system and depressive symptoms during the college years: triangulation, parental differential treatment, and sibling warmth as predictors. J Marital Fam Ther. 2016. Doi:10.1111/jmft.12175.
- [22] Gurdal S, Lansford JE, Sorbring E. Parental perceptions of children's agency: parental warmth, school achievement and adjustment. Early Child Dev Care. 2016;186(8):1203–11.

- [23] Del Barrio V, Holgado-Tello FP, Carrasco MA. Concurrent and longitudinal effects of maternal and paternal warmth on depression symptoms in children and adolescents. Psychiatry Res. 2016;242:75–81.
- [24] Donaldson CD, Handren LM, Crano WD. The enduring impact of parents' monitoring, warmth, expectancies, and alcohol use on their children's future binge drinking and arrests: a longitudinal analysis. Prev Sci. 2016;17(5):606–14.
- [25] Schofield TJ, Conger RD, Gonzales JE, Merrick MT. Harsh parenting, physical health, and the protective role of positive parent-adolescent relationships. Soc Sci Med. 2016;157:18–26.
- [26] Fairley L, Santorelli G, Lawlor DA, Bryant M, Bhopal R, Petherick ES, et al. The relationship between early life modifiable risk factors for childhood obesity, ethnicity and body mass index at age 3 years: findings from the Born in Bradford birth cohort study. BMC Obes. 2015:2:9.
- [27] Krug I, King RM, Youssef GJ, Sorabji A, Wertheim EH, Le Grange D, et al. The effect of low parental warmth and low monitoring on disordered eating in midadolescence: findings from the Australian Temperament Project. Appetite 2016;105:232–41.
- [28] Campos-Uscanga Y, Morales-Ortiz A, Argüelles-Nava V. Obesity in female student: ethnicity and self-regulation as predicting factors. Health Behav Policy Rev. 2016;3(4):315–22.
- [29] Taylor JH, Xu Y, Li F, Shaw M, Dziura J, Caprio S, et al. Psychosocial predictors and moderators of weight management programme outcomes in ethnically diverse obese youth. Pediatr Obes. 2016. Doi:10.1111/ ijpo.12165.
- [30] Brown SD, Ehrlich SF, Kubo A, Tsai AL, Hedderson MM, Quesenberry CP, Jr., Ferrara A. Lifestyle behaviors and ethnic identity among diverse women at high risk for type 2 diabetes. Soc Sci Med. 2016;160:87–93.
- [31] Comisión Nacional para el Desarrollo de los Pueblos Indígenas. Indicadores Socioeconómicos de los Pueblos Indígenas de México; 2015. [online] [cit. 2017-11-18]. Available from: https://www.gob.mx/cdi/documentos/indicadores-socioeconomicos-de-los-pueblos-indigenas-de-mexico-2015?idiom=es
- [32] Penna CMM, Queiróz ES. Conceptions and practices of nurses working with families. Texto & Contexto – Enfermagem 2015;24:941–9.
- [33] Moore J, Harre N. Eating and activity: the importance of family and environment. Health Promot J Austr. 2007;18(2):143–8.
- [34] Wang D, Xing XH, Wu XB. The healthy lifestyle scale for university students: development and psychometric testing. Aust J Prim Health. 2012;18(4):339–45.
- [35] Taylor ZE, Larsen-Rife D, Conger RD, Widaman KF. Familism, interparental conflict, and parenting in Mexican-origin families: a cultural-contextual framework. J Marriage Fam. 2012;74(2):312–27.
- [36] Gonzales NA, Dumka LE, Millsap RE, Gottschall A, McClain DB, Wong JJ, et al. Randomized trial of a broad preventive intervention for Mexican American adolescents. Journal of Consulting and Clinical Psychology 2012;80(1):1–16.
- [37] Umaña-Taylor AJ. Examining ethnic identity among Mexican-origin adolescents living in the United States. Hispanic Journal of Behavioral Sciences 2004;26(1): 36–59.

- [38] Esteinou R. Autonomía adolescente y apoyo y control parental en familias indígenas mexicanas. Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud 2015;13(2):749–66.
- [39] Davison KK, Gicevic S, Aftosmes-Tobio A, Ganter C, Simon CL, Newlan S, et al. Fathers' representation in observational studies on parenting and childhood obesity: a systematic review and content analysis. Am J Public Health. 2016;106(11):1980.