ORIGINAL ARTICLE

Perceived Barriers to Healthy Lifestyle Practices among School-going Youth in a Rural Block of Varanasi, India: An Institution-based Cross-sectional Study

Prayag Khandelwal, Vineet Kumar Pathak, Ravi Shankar, Ravpreet Kaur
Department of Community Medicine, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh

CORRESPONDING AUTHOR
Dr Ravi Shankar, Department of Community Medicine, Institute of Medical Sciences, BHU, Varanasi, Uttar Pradesh
Email: drrshankar@bhu.ac.in

CITATION
Khandelwal P, Kumar V, Pathak VK, Shankar R, Kaur R. Perceived Barriers to Healthy Lifestyle Practices among School-going Youth in a Rural Block of Varanasi, India: An Institution-based Cross-sectional Study. Indian J Comm Health. 2026;38(2):439-443. https://doi.org/10.47203/IJCH.2026.v38i02.039

ARTICLE CYCLE
Received: 20/02/2026; Accepted: 16/03/2026; Published: 31/03/2026

ABSTRACT

Background: Healthy lifestyle behaviours established during adolescence and early adulthood strongly shape later non-communicable disease risk. In rural settings, young people often face constraints that go beyond awareness such as academic pressure, limited opportunities for structured physical activity, and practical challenges related to diet. **Objectives:** To estimate the prevalence of perceived barriers across key lifestyle domains and to examine their association with selected sociodemographic characteristics among rural youth. **Methods:** An analytical study was conducted among 15–24 years students. Participants were selected using multistage sampling from educational institutions. Perceived barriers were assessed using a validated "Barriers to a Healthy Lifestyle" questionnaire covering nutrition, physical activity, and psychosocial stress domains, with responses recorded on a five-point Likert scale. Determinants were examined using multivariable logistic regression, and adjusted odds ratios (aOR) with 95% confidence intervals (CI) were reported. **Results:** High perceived barriers were reported by 49.0% of participants in the psychosocial stress domain, 47.0% in nutrition, and 45.3% in physical activity. Examination-related stress (68.0%) and lack of healthy food availability within institutions (55.0%) were the most frequently endorsed barriers. Male students had significantly higher odds of reporting lower perceived barriers across nutrition (aOR 2.15; 95% CI 1.25–3.67), physical activity (aOR 2.41; 95% CI 1.40–4.14), and psychosocial stress (aOR 2.53; 95% CI 1.47–4.36). Students in 12th grade and college demonstrated significantly higher perceived stress barriers compared to those in 10th–11th grade. **Conclusion:** Nearly half of rural, school-going youth reported high perceived barriers to healthy lifestyle practices, particularly related to psychosocial stress, diet, and physical activity.

KEYWORDS

Adolescents; Youth; Healthy lifestyle; Perceived barriers; Physical activity; Nutrition; Psychosocial stress; Rural; India; Non-communicable diseases

INTRODUCTION

Lifestyle is defined as the characteristic way individuals live, involving habits and practices shaped by social, cultural, and environmental determinants. In public health, it is an interplay of modifiable behaviours such as diet, physical activity, and stress-coping mechanisms that are acquired early and often persist into adulthood. Adolescence (10–19 years) and youth (15–24 years) represent a critical developmental window where these behaviours are established, significantly influencing long-term health trajectories.1-2

While awareness is increasing, the adoption of healthy practices is hindered by "barriers", perceived or actual, constraints like academic workload, lack of motivation, and time scarcity. These barriers are especially influential among youth due to their evolving autonomy and institutional dependencies. However, most existing evidence originates from urban or Western settings, leaving a gap in understanding rural Indian contexts3-4. Therefore, this study was undertaken to identify the multifaceted barriers to a healthy lifestyle among adolescents and youth in a rural block of Varanasi.

Aim: To assess perceived barriers to healthy lifestyle practices among school and college-going youth in a rural block of Varanasi.

Objectives

- To estimate the prevalence and identify the most frequently perceived barriers across nutrition, physical activity, and psychosocial stress domains among rural youth.
- To determine the association between selected sociodemographic factors (age, gender, education, caste, religion, and family size) and domain-specific perceived lifestyle barriers using multivariable analysis.

MATERIAL & METHODS

Study Type and Study Design: This was an institution-based cross-sectional study conducted to identify the perceived barriers to a healthy lifestyle.

Study Setting: The study was conducted in the Chiraigaon Community Development Block of Varanasi district, Uttar Pradesh, within the rural field practice area of the Department of Community Medicine, Institute of Medical Sciences, Banaras Hindu University.

Study Population: The study population consisted of adolescents and youth in the age group of 15–24 years enrolled in educational institutions within the selected block.

Study Duration: The data collection was carried out over a period of four months, from August 2024 to November 2024.

Sample Size Calculation: The sample size was calculated using Cochrane's formula for cross-sectional studies (n = z2 p*q/d2). Based on the reference study by Tomy C. et al. (2019), where 57.2% of participants perceived a major barrier to a healthy lifestyle, and using a 6% absolute precision (d) with a 95% confidence level (Z=1.96), the required sample size was 261. To account for potential non-response, the final sample size was rounded up to 300 participants.5

Inclusion Criteria

Youth in the age group of 15–24 years.

Students enrolled in the selected educational institutions.

Participants consenting for the study.

Exclusion Criteria

Physically or intellectually disabled individuals.

Strategy for Data Collection

A multi-stage sampling technique was utilized. From 140 villages in the block, 9 villages were identified as having both an intercollege and a degree college. Two villages, Sivon and Bariyasanpur, were selected via simple random sampling. Data were collected using a structured interview schedule adopted from a previously published study and administered during class hours. (Figure 1)

Study tool: To assess the perceived constraints to a healthy lifestyle, a structured questionnaire was utilized to evaluate five key domains using a 5-point Likert scale. This instrument was a pre-validated tool adopted from the study by Tomy et al., which demonstrated high reliability and good internal consistency with a Cronbach's alpha value of 0.887.(5)

The dietary domain explored information deficits, lack of motivation, taste preferences, and practical constraints such as time for breakfast or the challenges of living away from home. The physical activity domain addressed lack of specific skills, low enjoyment, shyness while exercising, and competing sedentary interests like television or video games. Psychosocial stress was evaluated through academic pressures, including exams and long study hours, alongside parental expectations and the availability of institutional support like counselling. Finally, the tobacco and alcohol domains investigated social influences, such as peer pressure and the perceived social image associated with use, alongside the role of these substances in stress relief and the level of family support for cessation.

Operational Definition: Barriers were defined as perceived or actual factors hindering the adoption or maintenance of health-promoting behaviours. Using the domain specific mean score as a cut-off, participants were categorized into "Low Barrier" (score ≤ mean) and "High Barrier" (score > mean).

Ethical Issues and Informed Consent: The study was approved by the Institutional Ethics Committee. Participants aged 18 years and above provided written informed consent, while for those below 18, assent was obtained.

Data Analysis: Data were entered into Microsoft Excel and analysed using STATA version 12. Categorical variables were summarized using frequencies and percentages, and associations were assessed using Chi-square tests and adjusted Odds Ratios with 95% Confidence Intervals were calculated using logistic regression. Results with $p<0.05$ was considered statistically significant.

RESULTS

Sociodemographic Characteristics: The sociodemographic profile of the 300 participants revealed that a significant majority (84.0%) were adolescents aged 15–19 years, with females comprising 64.0% of the study population compared to 36.0% males. Regarding educational status, more than half (55.0%) were 12th-grade students, while college-level and 10th/11th-grade students accounted for 24.3% and 20.7%, respectively. The caste distribution was dominated by the OBC category (59.7%), followed by SC (21.0%) and UR (15.7%), reflecting the local community structure. A majority of participants were Hindus (97.0%), and 71.7% belonged to families with less than five members. (Table 1)

Table 1. Baseline distribution of sociodemographic profile of study participants (n=300)

Variable	Category	n	%
Age	15–19	252	84.0
	20–24	48	16.0
Sex	Female	192	64.0
	Male	108	36.0
Education	10th–11th	62	20.7
	12th	107	35.7
	College	131	43.7
Caste	OBC	179	59.7
	SC	63	21.0
	ST	11	3.7
	UR	47	15.7
Religion	Hindu	291	97.0
	Muslim	9	3.0
Family size	<5 members	135	45.0
	≥5 members	165	55.0

Domain-wise Distribution of Perceived Barriers: The mean barrier scores at baseline were 34.76 ± 7.59 for nutrition domain, 33 ± 7.90 for physical activity domain, and 21.22 ± 5.44 for psychosocial stress domain. Based on these cut-offs, high barriers were most prevalent in the domain of stress (49.0%), followed by nutrition (47.0%) and physical activity (45.3%). (Table 2)

Table 2: Domain scores and prevalence of perceived barriers of study participants (n=300)

Domain	Mean ± SD (Range)	Low barrier n (%)	High barrier n (%)

Nutrition	34.76 ± 7.59 (14–56)	159 (53.0)	141 (47.0)
Physical activity	33.00 ± 7.90 (12–56)	164 (54.7)	136 (45.3)
Psychosocial stress	21.22 ± 5.44 (7–35)	153 (51.0)	147 (49.0)

The prevalence of tobacco consumption was reported by 18.3% of the participants, while alcohol use was observed in 3.3% of the study population. Due to the low frequency of users in these categories, the tobacco- and alcohol-related barrier domains were excluded from further analysis to maintain statistical robustness and validity.

Item-level Analysis of Perceived Barriers: In the psychosocial stress domain, examination-related stress was the most frequently reported barrier, with 204 participants (68.0%) agreeing or strongly agreeing that examinations contributed significantly to stress. This was followed by long study hours, reported by 158 participants (52.7%), and lack of time for personal activities, reported by 150 participants (50.0%). Nearly half of the participants (146; 48.7%) perceived lack of access to a counsellor as a barrier, while 110 participants (36.7%) reported absence of entertainment or recreational activities within the campus.

In the nutrition domain, the most commonly endorsed barriers were non-availability of healthy food options within educational institutions and peer encouragement towards junk food consumption, each reported by 165 participants (55.0%). Easy access to junk or fast food was perceived as a barrier by 150 participants (50.0%), while low motivation to eat healthy was reported by 148 participants (49.3%). Lack of adequate information regarding healthy diet was endorsed by 143 participants (47.7%).

Within the physical activity domain, lack of information about appropriate physical activity was reported by 139 participants (46.3%). Low motivation to exercise was perceived as a barrier by 134 participants (44.7%), followed by lack of skills or know-how for exercise (128; 42.7%). Lack of peer support for exercising and non-availability of playgrounds or facilities were each reported by 127 participants (42.3%). (Table 3)

Multivariable logistic regression analysis showed that gender consistently influenced perceived lifestyle barriers across all domains. Male students were more likely to report fewer perceived barriers related to nutrition (aOR = 2.15; 95% CI: 1.25–3.67; p = 0.005), physical activity (aOR = 2.41; 95% CI: 1.40–4.14; p = 0.001), and psychosocial stress (aOR = 2.53; 95% CI: 1.47–4.36; p = 0.001). This suggests that female students experience greater day-to-day challenges in maintaining healthy eating habits, engaging in physical activity, and coping with academic stress.

Age also played a role, particularly for physical activity and stress. Students aged 20–24 years were more likely to report lower perceived barriers compared to those aged 15–19 years (aOR = 2.30; 95% CI: 1.07–4.94; p = 0.033 for physical activity; aOR = 2.20; 95% CI: 1.04–4.64; p = 0.038 for stress).Students in 12th grade and college reported higher stress-related barriers than those in 10th–11th grades (aOR = 0.34; 95% CI: 0.17–0.69; p = 0.003 and aOR = 0.46; 95% CI: 0.23–0.94; p = 0.033, respectively). In the nutrition domain, 12th-grade students also reported greater perceived barriers (aOR = 0.47; 95% CI: 0.24–0.92; p = 0.028).

Caste, religion, and family size were not significantly associated with perceived barriers in any domain, although students from larger families showed a borderline tendency toward higher physical activity barriers (aOR = 0.64; 95% CI: 0.40–1.04; p = 0.074). (Table 4 & 5)

Figure 1: Showing the Multistage Sampling Technique and Methodology Flow adopted

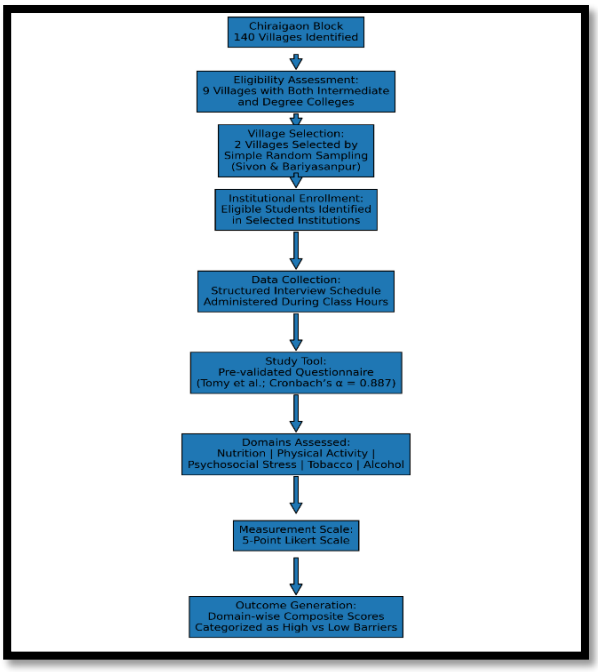

Figure 2: Showing the Radar Plot for Model Performance

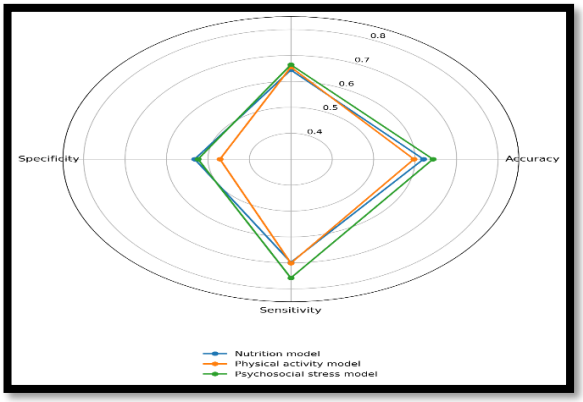

Table 3: Domain wise barrier-item identification in decreasing order among study participants (n=300)

Domain	Highest-endorsed barrier items	Agree (4–5) n (%)
Psychosocial stress	Stress during exams	204 (68.0)

	Long study hours	158 (52.7)
	Lack of time (general)	150 (50.0)
	No access to counsellor	146 (48.7)
	No entertainment/recreation in campus	110 (36.7)
Nutrition	Healthy food not available in institution	165 (55.0)
	Friends encourage eating junk food	165 (55.0)
	Easy access to junk/fast food	150 (50.0)
	Low motivation to eat healthy	148 (49.3)
	Lack of information on healthy diet	143 (47.7)
Physical activity	Lack of information on physical activity	139 (46.3)
	Low motivation to exercise	134 (44.7)
	Lack skills/know-how for exercise	128 (42.7)
	Friends do not support exercising	127 (42.3)
	No playground/facility access	127 (42.3)

Table 4: Multivariate Analysis of relevant domain with the selected predictors (Ref category in footnote*

Predictor	Nutrition		Physical activity		Psychosocial stress	
	aOR (95% CI)	p value	aOR (95% CI)	p value	aOR (95% CI)	p value
Male (vs Female)	2.15 (1.25–3.67)	0.005	2.41 (1.40–4.14)	0.001	2.53 (1.47–4.36)	0.001
Age 20–24 (vs 15–19)	1.51 (0.72–3.16)	0.273	2.30 (1.07–4.94)	0.033	2.20 (1.04–4.64)	0.038
Education: 12th (vs 10–11)	0.47 (0.24–0.92)	0.028	1.12 (0.57–2.19)	0.75	0.34 (0.17–0.69)	0.003
Education: College (vs 10–11)	0.70 (0.35–1.40)	0.314	1.19 (0.59–2.38)	0.632	0.46 (0.23–0.94)	0.033
Caste: SC (vs OBC)	0.77 (0.42–1.41)	0.4	0.59 (0.32–1.10)	0.096	0.98 (0.53–1.79)	0.938
Caste: ST (vs OBC)	4.10 (0.84–20.04)	0.081	1.26 (0.34–4.69)	0.735	2.84 (0.69–11.66)	0.147
Caste: UR (vs OBC)	0.82 (0.41–1.63)	0.569	0.74 (0.37–1.48)	0.398	0.82 (0.41–1.64)	0.568
Muslim (vs Hindu)	1.06 (0.26–4.32)	0.933	0.72 (0.18–2.89)	0.644	1.26 (0.30–5.33)	0.754
Family size ≥5 (vs <5)	1.07 (0.66–1.72)	0.797	0.64 (0.40–1.04)	0.074	0.91 (0.56–1.48)	0.699

**Outcome in all models: Low barrier (yes=1) vs High barrier (no=0); Reference categories: Female, 15–19 years, 10th–11th education, OBC, Hindu, <5 members*

Table 5: Discrimination Metrics for the adjusted models (Nutrition, Physical Activity and Stress)

Model	AUC	Accuracy	Sensitivity	Specificity
Nutrition	0.644	0.620	0.698	0.532
Physical activity	0.655	0.597	0.701	0.471
Psychosocial stress	0.664	0.643	0.758	0.524

Accuracy cut off taken as 0.5

DISCUSSION

In this study of school- and college-going youth in rural Varanasi, nearly half of the participants perceived high barriers to adopting healthy lifestyle practices. Specifically, high barriers were most prevalent in the psychosocial stress domain (49.0%), followed by nutrition (47.0%) and physical activity (45.3%). These findings align with the parent study by Tomy et al., which observed that 57.2% of college students in an Indian urban setting felt strong resistance to healthy living, suggesting that while the prevalence is slightly lower in this rural cohort, the burden remains substantial.(5)

The high prevalence of stress barriers (49.0%) is consistent with broader research identifying academic pressure as a primary mental health concern among Indian students. In our study, examination-related stress was the most frequently endorsed barrier, reported by 68.0% of participants, mirroring findings by Verma et al. regarding the intensity of academic demands.(6)

Furthermore, academic stage significantly influenced these perceptions, as students in the 12th grade (aOR 0.34; 0.003) and college (aOR 0.46; 0.033) were significantly less likely to report low barriers effectively perceiving higher stress compared to those in 10th–11th grades. A consistent gender gap emerged as a primary finding, with male students significantly more likely to report lower perceived barriers across nutrition (aOR 2.15), physical activity (aOR 2.41), and psychosocial stress (aOR 2.53). This disparity is echoed in global trends where girls consistently face higher sociocultural and practical constraints to activity and diet. In the nutrition domain, 55.0% of students identified the lack of healthy food availability within their institutions as a major hurdle, while 50.0% cited easy access to junk food. These institutional barriers align with research by Rathi et al. on how the Indian food environment nudges youth toward calorie-dense snacks.(7)

Peer influence also played a role, with 55.0% noting that friends encourage eating junk food, a phenomenon described by Salvy et al. as a critical factor in adolescent dietary habits.(8)

Age played a notable role in navigating these hurdles; participants in the 20–24 age group were significantly more likely to report lower barriers in physical activity (aOR 2.30) and stress (aOR 2.20). This shift likely reflects a transition toward greater personal autonomy and coping efficacy, as theorized by Arnett in his work on emerging adulthood.(9)

While the reported prevalence of tobacco (18.3%) and alcohol (3.3%) use was lower than in some facility-based studies, it remains a concern for prevention, consistent with the regional variations noted in the National Family

Health Survey. Finally, the model discrimination metrics (AUC 0.64–0.66) suggest that many barriers are shaped by unmeasured psychosocial and environmental forces, a limitation also observed in meta-analyses of health behavior prediction models. (10-11)

Conclusion

Nearly 50% of students feel one of the major obstacles when trying to live healthier lives. Eastern Uttar Pradesh hosts young adults navigating school and college while dealing with emotional strain, food choices, movement habits. Stress tied to exams comes up again and again as a big challenge to every student in modern times. One significant finding says that women have more difficulty in all areas compared to men. For individuals still in high school, challenges seemed less intense than for older learners. Those further along academically often reported tougher emotional demands.

Recommendation

High levels of stress make it essential for schools to build clear programs helping students manage pressure. These might include regular counselling access along with adjustments to how much homework or studying students are dealing and at what level along with surrounding environment of institution. Since women often feel more obstacles, especially when joining sports or physical classes, gender-aware methods need attention that should be more acceptable. Offering quiet, respectful outdoor spaces where everyone can move freely matters. Changing what food options are available on campus canteen can be a important section to work upon by institutions. At the last educational institutions should be torch bearer and hub site for healthy eating and healthy practices among the most critical section of the society i.e., youth.

Limitation of the Study

The cross-sectional design limits causal interpretation of the associations observed between sociodemographic characteristics and perceived barriers. The reliance on self-reported measures may introduce response bias, particularly for sensitive behaviours such as tobacco and alcohol use. The study was confined to school- and college-going youth within a single rural block, which may limit generalizability to out-of-school adolescents or youth from different geographic or sociocultural contexts.

Relevance of the Study

This study contributes context-specific evidence from a rural North Indian setting, a population often underrepresented in behavioural health research. By integrating domain-wise prevalence, item-level barrier identification, and adjusted multivariable analysis, the findings provide actionable insights for educators, public health planners, and policymakers. The identification of academic stage and gender as key determinants of perceived barriers offers a targeted framework for intervention design. In the broader landscape of non-communicable disease prevention, understanding perceived feasibility among youth is essential for designing sustainable, institution-linked health promotion strategies in rural India.

Authors Contribution

All authors have contributed equally.

Financial Support and Sponsorship

Nil

Conflict of Interest

There are no conflicts of interest.

Acknowledgement

The authors sincerely acknowledge the study participants for generously giving their time and sharing their responses for this research.

Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

References

1. Health for the world's adolescents: a second chance in the second decade: summary [Internet]. [cited 2026 Feb 19]. Available from: https://www.who.int/publications/i/item/WHO-FWC-MCA-14.05
2. Sawyer SM, Afifi RA, Bearinger LH, Blakemore SJ, Dick B, Ezeh AC, et al. Adolescence: a foundation for future health. Lancet Lond Engl. 2012 Apr 28;379(9826):1630–40. doi:10.1016/S0140-6736(12)60072-5 PubMed PMID: 22538178.
3. Health promotion [Internet]. [cited 2026 Feb 19]. Available from: https://www.who.int/health-topics/health-promotion
4. Anjali A, Sabharwal M. Barriers in adopting a healthy lifestyle: Insight from college youth. Int J Med Sci Public Health. 2017;6(3):1. doi:10.5455/ijmsph.2017.1059014102016
5. Tomy C, Fathima FN, Mathew SS, Johnson AR. Barriers to Healthy Lifestyle among College-Going Students in a Selected College in Bengaluru Urban District. Indian J Community Med Off Publ Indian Assoc Prev Soc Med. 2019 Oct;44(Suppl 1):S54–6. doi:10.4103/ijcm.IJCM_44_19 PubMed PMID: 31728092; PubMed Central PMCID: PMC6824178.
6. Verma S, Gupta J. Some aspects of high academic stress and symptoms. In. 1990 [cited 2026 Feb 20]. Available from: https://www.semanticscholar.org/paper/Some-aspects-of-high-academic-stress-and-symptoms.-Verma-Gupta/56cbd0b24897df46574a69e982bc186e0198ce99
7. Rathi N, Riddell L, Worsley A. Food consumption patterns of adolescents aged 14-16 years in Kolkata, India. Nutr J. 2017 Aug 24;16(1):50. doi:10.1186/s12937-017-0272-3 PubMed PMID: 28836982; PubMed Central PMCID: PMC5571590.
8. Sj S, K de la H, Jc B, Rc H. Influence of peers and friends on children's and adolescents' eating and activity behaviors. Physiol Behav. 2012 Jun 6;106(3). doi:10.1016/j.physbeh.2012.03.022 PubMed PMID: 22480733.
9. Arnett JJ. Emerging adulthood. A theory of development from the late teens through the twenties. Am Psychol. 2000 May;55(5):469–80. PubMed PMID: 10842426.
10. NFHS [Internet]. [cited 2026 Feb 16]. Available from: https://www.nfhsiips.in/nfhsuser/nfhs5.php
11. McEachan R, Taylor N, Harrison R, Lawton R, Gardner P, Conner M. Meta-Analysis of the Reasoned Action Approach (RAA) to Understanding Health Behaviors. Ann Behav Med Publ Soc Behav Med. 2016 Aug;50(4):592–612. doi:10.1007/s12160-016-9798-4 PubMed PMID: 27169555; PubMed Central PMCID: PMC4933736.