

KNOWLEDGE OF ADOLESCENTS ON VACCINES: AN INTEGRATING REVIEW

Conhecimento de adolescentes sobre vacinas: uma revisão integrativa

Conocimiento de adolescentes sobre las vacunas: una revisión integrativa

Juliane Danielly Santos Cunha¹, Malvina Thaís Pacheco Rodrigues², Márcio Dênis Medeiros Mascarenhas³, Marcus Vinicius da Rocha Santos da Silva⁴, Déborah Fernanda Campos da Silva⁵

How to cite this article:

Cunha JDS, Rodrigues MTP, Mascarenhas MDM, Silva MVRS, Silva DFC. Knowledge of adolescents on vaccines: an integrating review. 2021 jan/dez; 13:1211-1216. DOI: <http://dx.doi.org/0.9789/2175-5361.rpcfo.v13.9501>.

ABSTRACT

Objective: to analyze the scientific productions about adolescents' knowledge about vaccines. **Methods:** integrative review that used the databases: Latin American and Caribbean Literature in Health Sciences (LILACS), Medical Literature Analysis and Online Retrieval System (MEDLINE) and Nursing Databases (BDENF). The descriptors were used with the following search equation: "Knowledge" and "Adolescents" and "Vaccines". Scientific articles of the original type, published from 2010 to 2017, were included with adolescents, in the Portuguese, Spanish and English languages, available on-line in full and free of charge; we excluded articles that did not have complete text available online, theses, dissertations and monographs. **Results:** the six scientific productions analyzed revealed scarce knowledge about immunization practices and knowledge deficits on vaccines among adolescents. **Conclusion:** adolescents' level of knowledge about vaccines is unsatisfactory, representing a factor that may lead to a decrease in vaccination coverage and increase the vulnerability of these individuals to immunopreventable diseases.

DESCRIPTORS: Knowledge; Adolescents; Vaccines.

1 Nurse, Master in Health and Community by UFPI, Professor at Unidiferencial Piauí, Nursing Coordinator at HMIJV. ORCID: <https://orcid.org/0000-0002-2037-0661>

2 Nurse, PhD in Collective Health, Professor at Universidade Federal do Piauí-UFPI. ORCID: <https://orcid.org/0000-0001-5501-0669>

3 Nurse, PhD in Medical Sciences at UNICAMP, Professor at Universidade Federal do Piauí-UFPI. ORCID: <https://orcid.org/0000-0001-5064-2763>

4 Nurse. Nurse of the Regional Nursing Council of Paraná. Specialist in Higher Education Teaching, Health Management and Health Audit. Post-graduate student in Nursing at the UNINTER International University Center. ORCID: <https://orcid.org/0000-0002-5905-6434>

5 Nurse, Master in Health and Community by UFPI, ORCID: <https://orcid.org/0000-0002-0117-6812>

RESUMO

Objetivo: analisar as produções científicas acerca do conhecimento dos adolescentes sobre vacinas. **Métodos:** revisão integrativa que utilizou as bases de dados: Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), *Medical Literature Analysis and Retrieval System on-line* (MEDLINE) e Bases de Dados de Enfermagem (BDENF). Os descritores foram utilizados com a seguinte equação de busca: “Conhecimento” and “Adolescentes” and “Vacinas”. Incluíram-se artigos científicos do tipo original, publicados de 2010 a 2017, com adolescentes, nos idiomas português, espanhol e inglês, disponíveis *on-line* na íntegra e de modo gratuito; excluíram-se artigos incompletos, teses, dissertações e monografias. **Resultados:** as seis produções científicas analisadas revelaram conhecimento escasso acerca das práticas de imunização e déficit de conhecimento sobre vacinas entre os adolescentes. **Conclusão:** o nível de conhecimento dos adolescentes sobre vacinas é insatisfatório, representando um fator que pode ocasionar diminuição da cobertura vacinal e aumentar a vulnerabilidade desses indivíduos as doenças imunopreveníveis.

DESCRIPTORES: Conhecimento; Adolescentes; Vacinas.

RESUMEM

Objetivo: analizar producciones científicas sobre el conocimiento de los adolescentes sobre las vacunas. **Métodos:** revisión integradora que utilizó las bases de datos: Literatura Latinoamericana y del Caribe en Ciencias de la Salud (LILACS), Análisis de Literatura Médica y Sistema de Recuperación en línea (MEDLINE) y Bases de Datos de Enfermería (BDENF). Los descriptores se utilizaron con la siguiente ecuación de búsqueda: “Conocimiento” y “Adolescentes” y “Vacunas”. Se incluyeron artículos científicos originales, publicados de 2010 a 2017, con adolescentes, en portugués, español e inglés, disponibles en línea de forma completa y gratuita; artículos incompletos, tesis, disertaciones y monografías fueron excluidos. **Resultados:** las seis producciones científicas analizadas revelaron poco conocimiento sobre las prácticas de inmunización y la falta de conocimiento sobre las vacunas entre los adolescentes. **Conclusión:** el nivel de conocimiento de los adolescentes sobre las vacunas es insatisfactorio, lo que representa un factor que puede causar una disminución en la cobertura de vacunación y aumentar la vulnerabilidad de estos individuos a las enfermedades prevenibles por vacunación.

DESCRIPTORES: Conocimiento; Adolescentes; Vacunas.

INTRODUCTION

Adolescence is a period of gradual transformation between childhood and adulthood, characterized by behavioral, physical, psychological and social changes.¹ It is a stage marked by the need for social integration, the search for and construction of personality, the discovery of one's own limitations, emotional and intellectual growth, the development of interpersonal relationships, the definition of sexual identity, the experience of affectivity and sexuality.¹⁻² Therefore, adolescents constitute a priority group for health promotion because of the behaviors that expose them to various conjunctions of vulnerability to health.²⁻⁴

In Brazil, considering the legal perspective, it is known that the fundamental rights related to childhood and adolescence are ensured in the Estatuto da Criança e do

Adolescente (ECA), which guarantees adolescents the right to protection, life and health, and guarantees them access to health services, through the Sistema Único de Saúde (SUS), with actions of promotion, protection and recovery of health.⁵

In this logic, among the most efficient actions in the prevention of diseases and promotion of health, immunization stands out, and the sharp reduction in morbidity and mortality from immunopreventable diseases in recent decades, in Brazil and on a global scale, serves as unquestionable proof of this efficiency.⁶

Vaccination coverage rates among adolescents are low, which is a major public health problem. Data from the Centers for Disease Control and Prevention (CDC) on the National Immunization Survey-Teen (NIS-Teen) conducted in 2014, with 20,827 adolescents between 13 and 17 years old, showed that vaccination coverage against tetanus, diphtheria and acellular pertussis (dTpa), against meningococcal disease and human papillomavirus, even though it increased in relation to the previous year, remains below 80%, or 79.3%, 60.0% and 41.7%, respectively.⁷

In this scenario, considering that the lack of knowledge about vaccines, transmissible and immunopreventable diseases represents a factor that may be associated with low vaccination coverage, it is understood that the acquisition of knowledge by adolescents about the benefits of immunobiologicals may represent a foundation that will provide increased rates of vaccination coverage.⁵ In this sense, it is emphasized that the adolescent should be perceived as an individual who has knowledge and who sometimes needs to be sensitized with other knowledge in order to build and/or improve their practices, as well as modify their habits.²

In view of the above, this study aimed to analyze the scientific productions about the knowledge of adolescents about vaccines.

METHODS

An integrative literature review study, being considered a strategy in the identification of existing evidences with the objective of basing a health practice in the several specialties.⁸ For the elaboration of this research, six stages were followed: identification of the theme and selection of the research question, establishment of the exclusion and inclusion criteria, identification of the pre-selected and selected studies, categorization of the selected studies, analysis and interpretation of the results, presentation of the review/knowledge synthesis.⁹

To guide this study, the following literature search question was formulated: What knowledge do adolescents have about vaccines? The following Health Science Descriptors (DeCS) were selected to answer this question, according to the health terminology in the Virtual Health Library (VHL): “Knowledge” and “Adolescents” and “Vaccines”. The Boolean operator “and” was used along with the selected terms as a way to restrict the sample.

Two independent researchers searched the following electronic databases: Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), Medical Literature Analysis and Retrieval System on-line (MEDLINE) and Bases de Dados de Enfermagem (BDENF) in March 2017.

The inclusion criteria were: scientific articles of the original type, published from 2010 to 2017, with adolescents, in Portuguese, Spanish and English, available online in full and free of charge. Incomplete articles, theses, dissertations and monographs were excluded.

As for the search stage, 291 scientific productions were initially obtained: 266 from MEDLINE, 18 from LILACS and four from BDENF. Initially, 133 were articles with full text available, later the filter referring to the delimited time cut was applied, and 110 articles were obtained. These were read and selected, according to the eligibility criteria, so that the studies that effectively met the objective of this research were considered, ending a sample of six articles.

It is mentioned that the data were organized, analyzed and interpreted in a synthesized way, through the elaboration of a summary table containing the following items: identification

of the article, authors, year and periodical of publication, objectives of the study, study design, level of evidence and main results.

The articles were analyzed according to the levels of evidence, considering the following classification: level 1: systematic reviews or meta-analysis of relevant clinical trials; level 2: evidence of at least one well-designed randomized controlled clinical trial; level 3: well-designed non-randomized controlled clinical trials; level 4: well-designed cohort and case-control studies; level 5: systematic review of descriptive and qualitative studies; level 6: evidence derived from a single descriptive or qualitative trial; level 7: opinion of authorities or expert committees including interpretations of non-research-based information.¹⁰

RESULTS

Of the 06 articles selected, half were published in 2013, 33% in 2010 and 17% in 2012; most of the studies were conducted in Brazil, being five publications in Portuguese and one in Spanish. As for the level of evidence, it was found that most studies (83%) presented level IV evidence.

Chart 1- Distribution of studies according to author, article title, journal, year of publication, objective, type of study, level of evidence and main results. Caxias (MA), Brazil, 2017.

Article	Objective	Type of study / Level of evidence	Main results
1. Pereira AK, Silveira CC, Gonçalves RCB, Marinho PA, Pereira LM. Cobertura vacinal dos adolescentes da área de abrangência do centro de saúde cachoeirinha na região nordeste de Belo Horizonte-MG. Rev Med Minas Gerais. 2013.	Establish the percentage of adolescents with a complete vaccination scheme, according to the MH vaccination calendar, and analyze the level of knowledge of adolescents and their guardians about vaccine-preventable diseases.	Study quantitative, transversal/ IV	The predominant age bracket was from 15 to 19 years (55.23%), corresponding to the young people who answered the questionnaire. The vaccination coverage defined by the adolescent card showed that 39 were up to date, 111 were late and 60 did not answer. The vaccine against yellow fever was the one that presented the smallest coverage among the youths. The ignorance about immunization is great among adolescents.
2. Gutman MF, Luna MC, Traviesa LM. Nivel de conocimiento y aceptabilidad de la vacuna contra el Virus Del Papiloma Humano (HPV) en estudiantes secundarios de la ciudad de Presidencia Roque Sáenz Peña, Chaco. Rev Fac Med. 2013.	Relate the acceptability of the vaccine against (HPV) and previous knowledge about it and its relationship with cervical-uterine cancer.	Study quantitative, cross-sectional/IV	The knowledge of the researched students about HPV vaccine was considered unsatisfactory. The authors deduced that the greater the knowledge about vaccines the greater the probability of people accepting the vaccination.
3. Melo MCP, Santos MM, Mendes RNC, Sales JRP, Silva RM. Percepção de adolescentes sobre imunização em uma escola pública de Petrolina-PE. Rev Min Enferm. 2013.	Analyze the perception of adolescents in a public school of Petrolina - PE on immunization.	Qualitative study with Bardin content analysis, exploratory and descriptive/ VI	The adolescents were of both sexes, with ages ranging from 14 to 17 years. They demonstrated that they knew the purpose and importance of immunization, although they had a knowledge deficit regarding the indication of vaccines. As for the vaccination status, most of them reported having the complete scheme, however, after observing some vaccine cards, it was noted that vaccines such as hepatitis B were missing.

Article	Objective	Type of study / Level of evidence	Main results
4. Carvalho AMC, Araújo TME. Conhecimento do adolescente sobre vacina no ambiente da Estratégia Saúde da Família. Rev Bras Enferm. 2012.	To raise the knowledge of adolescents living in an area of the Family Health Strategy (FHS), regarding the vaccination schedule and protection granted.	Quantitative, cross-sectional/IV study	It was observed that the adolescents in this study have a lack of knowledge about the recommended vaccines in the Ministry of Health calendar.
5. Carvalho AMC, Araújo TME. Fatores associados à cobertura vacinal em adolescentes. Acta Paul Enferm. 2010.	Analyze the factors associated with the condition of being vaccinated among adolescents in an area of Teresina Family Health Strategy - IP.	Quantitative, cross-sectional/IV study	The low vaccination coverage found in the study is mainly related to: missed opportunities for vaccination (65.5%) and lack of knowledge about vaccines.
6. Araujo TME, Sá LC, Silva AAS, Costa JP. Cobertura vacinal e fatores relacionados à vacinação dos adolescentes residentes na área norte de Teresina/PI. Rev Eletr Enf. 2010.	Check the vaccination coverage of adolescents living in the northern area of Teresina.	Quantitative, cross-sectional/IV study	Approximately 50% of the adolescents researched were unaware of the card and the vaccines intended for the adolescent. Vaccination coverage was low, especially against tetanus (2.5%).

DISCUSSION

Little knowledge about immunization practices is frequent among adolescents.^{5,11-15} In this age group, the acquisition of knowledge about vaccination is extremely necessary, as such a process will provide subsidies to increase the level of vaccine acceptability among schoolchildren, with direct repercussions on the increase of vaccine coverage and, consequently, on the decrease of immunopreventable diseases.¹¹

Adolescents' lack of knowledge about vaccination schedules is accentuated, with a small proportion of young people being able to report, for example, the protection afforded by hepatitis B and yellow fever vaccines.⁵ This reflects considerably on the increased prevalence of non-acceptance of vaccines by adolescents, as well as the lack of access to reverberant immunization information in increasing rates of non-acceptance.¹²⁻¹³

Many adolescents find it difficult to even cite the name of the vaccines, calling them by the name of the diseases against which they protect.¹³ Furthermore, lack of knowledge about diseases that can be prevented with vaccines, such as diphtheria, rubella, hepatitis, tetanus, and yellow fever, is very pronounced among young people.¹⁴

Adolescents, in general, perceive vaccines as an important means of disease prevention. However, the little knowledge of some of these individuals about the indication of immunobiologicals is so evident that vaccines are confused with injectable medications.¹⁵

Therefore, it is perceived that the knowledge about vaccines among adolescents is deficient and this situation is worrisome because immunization represents a practice of extreme value

due to the performance in breaking the chain of transmission of several pathologies. Several studies show that the lack of knowledge about immunobiologicals among young people implies in the decrease of vaccine coverage, which increases the vulnerability of these individuals to immunopreventable diseases.^{5,11-15}

In this regard, it is emphasized that individuals of other age groups, such as pregnant women and the elderly,¹⁶⁻¹⁷ generally have high levels of vaccination coverage, diverging from what happens with adolescents, and the deficit of knowledge about immunobiologicals on the part of young people represents an important factor that can interfere with this process.

It is understood the need to develop new strategies of action, so that health education is promoted, privileged and developed. In this context, the school becomes a unique place to disseminate, through health education, the importance of vaccination during adolescence.¹³ It is stressed that in this scenario of new dimensions of promoting care, adolescents should be perceived as critical and reflective individuals, who have the ability to assess the incorporation or not of values and transform them according to their own understandings.⁵

In this context, the Programa Saúde na Escola (PSE) and the Estratégia Saúde da Família (ESF) stand out as important allies, which should work in partnership, since it is understood that simultaneous supply of vaccines and health education carried out at school are essential tools for optimizing knowledge about vaccines and vaccine coverage of adolescents. To do so, it is necessary to understand comprehensive education as a concept that encompasses the attention, protection and full development of young people.^{5,14} Thus, as a way to contribute to changing reality, it is necessary to search for measures that

broaden adolescents' knowledge about vaccines, so that the expansion of vaccine coverage among these individuals is achieved.

It is important to emphasize that the performance of health education activities, especially with adolescents, is affected by the presence of some obstacles, such as: the participation of young people in health services, in general, is restricted to medical care practices, with emphasis on the disease and its treatment/control; adolescents are still as passive subjects of care, difficult to conquer and conduct, and still dependent on the reorganization of care practices.¹⁸ Moreover, there are also communication deficits and lack of creativity on the part of health care teams regarding the performance of the aforementioned educational activities.¹⁹

In this perspective, in order to overcome these difficulties, the importance of the PES is reiterated, through which the process of health education has been carried out in schools, considering that within its spectrum of action there is the focus given to the issue of vaccination, and the establishment of links between health professionals and users, the construction of discussion spaces to clear the doubts of young people about the issue, and the provision of information about the benefits of vaccines and prevented diseases represent some measures that will have a positive impact on the increase of adolescents' knowledge about immunization practices.²⁰

As for the limitations of the study, we cite the reduced number of publications on the subject and the low level of evidence of the articles studied.

CONCLUSION

The data analyzed revealed that adolescents' level of knowledge about vaccines is unsatisfactory. It was found that adolescents' knowledge deficit about vaccines represents a factor that may lead to decreased vaccine coverage, which may increase their vulnerability to immunopreventable diseases.

For this reason, it is inferred that the greater the knowledge about immunization, the more likely adolescents are to accept vaccination. Furthermore, it is believed that the school setting is perceived as a unique space for health education actions to be developed.

REFERENCES

1. Soares SM, Amaral MA, Silva LB, Silva PAB. Workshops on sexuality in adolescence: revealing voices, unveiling views student's of the medium teaching glances. *Esc. Anna Nery Rev. Enferm.* [Internet]. 2008 [cited 2020 jul 01]; 12(3): Available from: <https://doi.org/10.1590/S1414-81452008000300014>.
2. Sousa ZAA, Silva JG, Ferreira MA. Knowledge and practices of teenagers about health: implications for the lifestyle and self care. *Esc. Anna Nery Rev. Enferm.* [Internet]. 2014 [cited 2020 jul 01]; 18(3). Available from: <https://doi.org/10.5935/1414-8145.20140057>.
3. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Área do Adolescente e do Jovem. Marco legal: saúde, um direito de adolescentes. 2007 [Internet]. Brasília: Ministério da Saúde [acesso em 01 de julho 2020]. Disponível em: http://bvsm.s.saude.gov.br/bvs/publicacoes/07_0400_M.pdf.
4. Leite CT, Vieira RP, Machado CA, Quirino GS, Machado MFAS. Health education practice as perceived by senior high students. *Cogitare enferm.* 2014 [cited 2020 jul 01]; 19(1). Available from: <http://www.saude.ufpr.br/portal/revistacogitare/wp-content/uploads/sites/28/2017/02/35925-133802-2-PB.pdf>.
5. Carvalho AMC, Araújo TME. Adolescent's knowledge about vaccines in the Family Health Strategy environment. *Rev. bras. enferm.* [Internet]. 2012 [cited 2020 jul 01]; 65(2). Available from: <http://dx.doi.org/10.1590/S0034-71672012000200005>.
6. Ministério da Saúde (BR). Manual de rede de frio. Brasília: Ministério da Saúde. 2013 [Internet]. Brasília: Ministério da Saúde [acesso em 01 de julho 2020]. Disponível em: http://bvsm.s.saude.gov.br/bvs/publicacoes/manual_rede_frio4ed.pdf.
7. Reagan-Steiner S, Yankey D, Jeyarajah J, Elam-Evans LD, Singleton JA, Curtis CR, et al. National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13-17 Years-United States, 2014. Morbidity and mortality weekly report. [Internet]. 2015 [cited 2020 jul 01]; 64(29). Available from: <https://pubmed.ncbi.nlm.nih.gov/25055186/>.
8. Nicolussi AC, Sawada NO. Factors that influence the quality of life of patients with colon and rectal cancer. *Acta Paul. Enferm.* (Online). [Internet]. 2010 [cited 2020 jul 01]; 23(1). Available from: https://www.scielo.br/pdf/ape/v23n1/en_20.pdf.
9. Botelho LLR, Cunha, CCA, Macedo M. O método da revisão integrativa nos estudos organizacionais. *Gestão e Sociedade.* [Internet]. 2011 [acesso em 01 de julho 2020]; 5(11). Disponível em: <https://doi.org/10.21171/ges.v5i11.1220>.
10. Mendes KDS, Silveira RCCP, Galvão CM. Integrative literature review: a research method to incorporate evidence in health care and nursing. *Texto & contexto enferm.* [Internet]. 2008 [cited 2020 jul 01]; 17(4). Available from: <https://doi.org/10.1590/S0104-07072008000400018>.
11. Santos ACS, Silva NNT, Carneiro CM, Coura-Vital W, Lima AA. Knowledge about cervical cancer and HPV immunization dropout rate among Brazilian adolescent girls and their guardians. *BMC public health* (Online). [Internet] 2020 [cited 2020 jul 01]; 20. Available from: <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-020-8410-9>.
12. Carvalho AMC, Araújo TME. Factors associated to the vaccination covering in adolescents. *Acta Paul. Enferm.* (Online). [Internet]. 2010 [cited 2020 jul 01]; 23(6). Available from: https://www.scielo.br/pdf/ape/v23n6/en_13.pdf.
13. Araujo TME, Sá LC, Silva AAS, Costa JP. Vaccine coverage and factors related to the vaccination of adolescents living in the north area of Teresina/PI. *Rev. eletrônica enferm.* [Internet]. 2010 [cited 2020 jul 01]; 12(3). Available from: https://www.fen.ufg.br/fen_revista/v12/n3/v12n3a13.htm.
14. Pereira AK, Silveira CC, Gonçalves RCB, Marinho PA, Pereira LM. Vaccination coverage among adolescents in the areas surrounding the Cachoeirinha health center in the northeastern region of Belo Horizonte - MG. *Rev. méd. Minas Gerais.* [Internet]. 2013 [cited 2020 jul 01]; 23(3). Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IscScript=iah.iah.xis&src=google&base=LILA-CS&lang=p&nextAction=lnk&exprSearch=702897&indexSearch=ID>.
15. Melo MCP, Santos MM, Mendes RNC, Sales JRP, Silva RM. Perception of adolescents on immunization in a public school in Petrolina - PE. *REME rev. min. enferm.* [Internet]. 2013 [cited 2020 jul 01]; 17(2). Available from: <http://www.dx.doi.org/10.5935/1415-2762.20130028>.
16. Kfour RA, Richtmann R. Influenza vaccine in pregnant women: immunization coverage and associated factors. *Einstein (São Paulo).* [Internet]. 2013 [cited 2020 jul 01]; 11(1). Available from: <https://dx.doi.org/10.1590%2F1679-45082013000100010>.
17. Bós AJG, Mirandola AR. Vaccine coverage related to lower mortality for respiratory diseases. *Ciênc. Saúde Colet.* [Internet]. 2013 [cited 2020 jul 01]; 18(5). Available from: <https://doi.org/10.1590/S1413-81232013000500031>.
18. Vieira RP, Gomes SHP, Machado MFAS, Bezerra IMP, Machado CA. Participation of adolescents in the Family Health Strategy from the theoretical-methodological structure of an enabler to participation. *Rev. latinoam. enferm.* (Online). [Internet]. 2014 [cited 2020 jul 01]; 22(2). Available from: <https://dx.doi.org/10.1590%2F0104-1169.3182.2417>.

19. Santos JS, Andrade RD, Mello DF, Maia MAC. Health education in adolescence: contributions of the Family Health Strategy. *Rev. Soc. Bras. Enferm. Pediatras (Online)*. [Internet]. 2014 [cited 2020 jul 01]; 14(1). Available from: <https://sobep.org.br/revista/2014-volume-14/julho-numero-1.html>.
20. Adamcheski JK, Wiczorkiewicz AM, Junkes CHG. Imunização na adolescência: procura vacinal e outros determinantes. *Saúde E Meio Ambiente: Revista Interdisciplinar*. [Internet]. 2015 [acesso em 01 de julho 2020]; 4(2). Disponível em: <https://doi.org/10.24302/sma.v4i2.697>.

Received in: 01/11/2019
Required revisions: 18/06/2020
Approved in: 21/10/2020
Published in: 01/07/2021

Corresponding author

Juliane Danielly Santos Cunha
Address: Rua das Flores, 1018, Seriema, Brazil
Zip code: 65.602-560
Email address: juliane_enfer@hotmail.com
Telephone: (99) 981937611

**Disclaimer: The authors claim to
have no conflict of interest.**