



# Understanding the Triggers of Impulse Buying Behaviour: A Comprehensive Review

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## ABSTRACT:

This paper comprehensively reviews the various factors that trigger impulse buying behaviour, providing valuable insights for both consumers and marketers. We categorize the triggers into two main domains: internal and external. Internal factors explored include personality traits like sensation-seeking and impulsivity, emotional states like boredom or excitement, and personal values. The review investigates how these internal characteristics influence susceptibility to impulse buying. External factors examined encompass marketing strategies such as limited-time offers, product placement, and sensory cues in the shopping environment. Additionally, the authors analyse how situational factors like store atmosphere and social influence can contribute to impulsive purchasing. The review highlights the complex interplay between these internal and external triggers, emphasizing the crucial role of self-control in mediating impulse buying behaviour. By understanding these triggers, individuals can make more informed spending decisions, while marketers can develop targeted strategies that influence buying behaviour ethically.

**KEYWORDS:** personality traits, sensation-seeking, impulsivity, emotional states, marketing strategies, limited-time offers, product placement, complex interplay, informed spending decisions.

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## Introduction:

Impulse buying behaviour has become a prominent phenomenon in today's consumer-driven society, affecting individuals across various demographic segments. Defined as the spontaneous and unplanned purchase of goods or services without much forethought, impulse buying has garnered significant attention from researchers, marketers, and businesses alike. Understanding the triggers behind impulse buying behaviour is crucial for businesses seeking to capitalize on consumers' impulsive tendencies and for consumers themselves to make informed purchase decisions.

Impulse buying is characterized by its impromptu nature, often driven by immediate desires or emotional impulses rather than rational decision-making processes. It transcends traditional consumer behaviour models that focus on deliberate and planned purchases based on need, utility, or perceived value. Instead, impulse buying involves the surrender to momentary temptations and the indulgence in hedonic or emotional gratification.

The prevalence of Impulse buying behaviour is evident in the ever-expanding retail landscape, where consumers are exposed to a plethora of products and marketing stimuli on a daily basis. The rise of e-commerce and online shopping platforms has further amplified the opportunities for impulsive purchases, with personalized recommendations, flash sales, and one-click purchasing options readily available at consumers' fingertips.

This research paper aims to provide a comprehensive review of the triggers that instigate impulse buying behaviour among consumers. By delving into the psychological, situational, and marketing-related factors that contribute to impulsive decision-making, we can gain deeper insights into the complex nature of this behaviour. Such insights can aid businesses in crafting effective marketing strategies that leverage consumers' impulsive tendencies while fostering responsible consumption practices. Simultaneously, consumers can benefit from understanding their own impulsive behaviour, enabling them to make more deliberate and conscious purchase choices aligned with their long-term goals.

By analysing existing literature and synthesizing findings from various disciplines such as psychology, marketing, and consumer behaviour, this research paper aims to provide a comprehensive understanding of the triggers behind impulse buying. Through this review, we seek to contribute to the existing body of knowledge on consumer behaviour and shed light on the underlying factors that drive impulsive purchasing decisions.

The subsequent sections will delve into the psychological triggers that influence impulse buying, including the role of emotions, personality traits, and cognitive processes. We will then explore situational triggers such as store environments, time factors, and social influences. Finally, we will examine marketing-related triggers encompassing advertising and promotions, product characteristics, and the impact of online shopping factors. By exploring these dimensions, we hope to uncover valuable insights that can inform businesses and consumers on how to navigate and manage impulse buying behaviour effectively.

Overall, this comprehensive review seeks to contribute to the understanding of impulse buying behaviour and provide practical implications for businesses and consumers alike. By shedding light on the triggers that initiate impulsive purchases, we aim to facilitate the development of responsible consumption practices, enhance consumer satisfaction, and foster sustainable business strategies in the dynamic and ever-evolving marketplace.

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## LITERATURE REVIEW

1. S Mittal, [N Sondhi](#), [D Chawla](#) - Global Business Review, 2018 - Whereas rising markets like India show a profoundly conducive environment for drive buying conduct, they too speak to a problem due to their social and relevant uniqueness from Western/developed markets. Most existing investigate within the space in these markets points to either (dis)affirm the causal connections recognized within the Western markets or approve the systems created there. This article is an exploratory ponder that points to distinguish the idle components that restrain, impact or contain drive buying handle within the Indian setting and portrays an motivation buying scene in its aggregate. This would offer assistance to not as it were highlight likenesses or contrasts from the developed world but, more critically, too broaden the motivation buying viewpoint within the developing markets and permit future investigate to construct upon it experimentally.
2. GR Iyer, [M Blut](#), [SH Xiao](#), [D Grewal](#) ,2020 – Motivation buying by customers has gotten significant consideration in shopper investigate. The marvel is curiously since it isn't as it were provoked by a assortment of inside mental components but too impacted by outside, market-related jolts. The meta-analysis detailed in this article coordinating discoveries from 231 tests and more than 75,000 customers to amplify understanding of the relationship between motivation buying and its determinants, related with a few inside and outside components. Characteristics (e.g., sensation-seeking, drive buying inclination), thought processes (e.g., utilitarian, hedonic), shopper assets (e.g., time, cash), and promoting jolts develop as key triggers of drive buying. Consumers' self-control and temperament states intercede and clarify the full of feeling and cognitive mental forms related with drive buying. By setting up these pathways and forms, this ponder makes a difference clarify variables contributing to motivation buying and the part of components in standing up to such motivations. It moreover clarifies the conflicting discoveries in earlier investigate by highlighting the context-dependency of different determinants. Particularly, the comes about of a mediator investigation demonstrate that the impacts of numerous determinants depend on the utilization setting (e.g., product's personality expression, price level within the industry).
3. [S Abdelsalam](#), [N Salim](#), [RA Alias](#), [O Husain](#) – Within the past few a long time, online motivation buy has earned consideration from analysts in various fields, particularly famous within the generally unused field of social commerce (S-commerce). This intelligently environment may be a full of motivation buying stimulators. Be that as it may, no past ponders have been conducted to assess the status of the investigate approximately online drive buying behavior (IBB) in S-commerce. Consequently, the creators surveyed thinks about distributed between 2005 and 2019, to pick up an understanding into IBB. The creators utilized an input-moderator-mediator-output demonstrate for distinguishing and classifying variables that impact consumer's online IBB in S-commerce. The creators embraced a survey convention that included two stages (i.e., programmed and manual), and recognized 68 thinks about that tended to online IBB, of which 24 thinks about centered on IBB in S-commerce. The efficient audit comes about demonstrated that survey-based ponders (83%) and test strategies (17%) were predominant in online IBB in S-commerce. The creators moreover famous that a larger part of existing thinks about received stimulus-organism-response. In this ponder, the components that impact online IBB in S-commerce were classified, and a causal-chain system for online drive buying was created. At last, the creators made suggestions for future inquire about in this field.
4. D'Y Rigollet, H Kumlin – 2015 – This proposal takes the peruser on an exploratory travel into the improvement of drive acquiring conduct stemming from the expanded utilization of web-connected smartphones. At an exceptional rate, shoppers are able to get to businesses online, twenty-four hours a day, seven days a week, at their possess comfort, without confinements other than a association to the World Wide Web. This portable marvel has viably pushed the commercial advertise to unused boundaries and at the same time made unused conceivable outcomes for retailers to reach out to buyers by giving consistent and imaginative showcasing arrangements on versatile gadgets to a fast-growing showcase portion. This emanant innovation and the patterns it brings with it, requests extraordinary consideration to the investigation of customer behaviorism. As of date, the scholarly community has put moderately small accentuation on the advancement of motivation obtaining conduct as a item of smartphone utilization. In this paper, the creators explore the state of mind of nearby customers towards so-called 'push notifications', whose reason is to invigorate an incautious conduct within the smartphone client. The comes about of this think about appear that numerous variables in connection to thrust notices on smartphones play an vital portion in forming the state of mind of buyers and besides can inspire drive buying conduct. These variables frequently bridge each other and are at times commonly subordinate.
5. [A Hausman](#) - This think about utilized both subjective and quantitative information to test speculations related to consumers' inspirations to lock in in motivation buying. A grounded hypothesis approach was utilized to create theories from in-depth interviews. These theories were tried by the collection and examination of overview information. Information bolster the hypothesis that motivation buying could be a common strategy of item choice, in portion, since the shopping act and imprudent item determination give hedonic rewards. Encourage information-processing over-burden perplexes item choice, strengthening the rewards to be gotten from elective segment heuristics, like motivation buying.

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## OBJECTIVE

- This research paper aims to provide a comprehensive understanding of the factors that trigger impulse buying behaviour among consumers.
- By examining the psychological, situational, and marketing-related triggers, this paper seeks to shed light on the complex nature of impulse buying and its implications for businesses and consumers alike.
- Through an in-depth analysis of existing literature, this research aims to contribute to the existing knowledge and provide insights for marketers to effectively tap into consumers' impulsive tendencies.

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## FINDINGS

### *Psychological Triggers in Impulse Buying*

Impulse buying is a consumer behaviour characterized by unplanned, spontaneous purchases driven by immediate desires. Various psychological triggers play a significant role in influencing impulse buying decisions. This note explores three key aspects of psychological triggers: emotions and mood, personality factors, and cognitive processes.

#### **1. Emotions and Mood:**

Emotions and mood states have a profound impact on impulse buying. Positive emotions, such as happiness and excitement, can enhance the likelihood of impulsive purchases. Marketers often leverage this by creating advertisements that evoke positive emotions to encourage impulsive buying behaviour. For example, using catchy jingles or showcasing attractive lifestyles in commercials can trigger positive emotions, leading consumers to make impulsive purchases.

Conversely, negative emotions can also influence impulse buying. Some individuals may engage in retail therapy, using shopping as a way to cope with negative emotions such as stress, sadness, or frustration. Retail environments designed to provide a pleasant experience, such as soothing music or pleasant scents, can help elevate mood states and stimulate impulsive purchases.

#### **2 Personality Factors:**

Certain personality traits are associated with a higher tendency for impulse buying. Individuals with impulsive traits, such as low self-control, sensation-seeking, or novelty-seeking tendencies, are more likely to engage in impulsive purchases. They may feel a strong desire for immediate gratification and have difficulty resisting impulsive urges. Marketers often target these personality traits by creating a sense of urgency or scarcity to encourage impulse buying.

On the other hand, individuals with high levels of self-control and self-regulation are less prone to impulsive buying. They exhibit greater restraint and are more capable of resisting impulsive urges. Understanding these personality factors can help marketers develop strategies that cater to different consumer segments.

#### **3 Cognitive Processes:**

Cognitive biases and heuristics can significantly influence impulsive purchases. Cognitive biases, such as the scarcity effect or the anchoring effect, can distort consumers' decision-making processes and lead to impulsive choices. For instance, limited-time offers or exclusive deals can create a perception of scarcity, compelling consumers to make impulsive purchases before the opportunity vanishes.

Heuristics, or mental shortcuts, also play a role in impulsive buying. Consumers may rely on familiarity, social proof, or the availability heuristic when making quick decisions. Marketers can leverage these cognitive processes by employing persuasive tactics like endorsements from influencers or emphasizing the popularity of a product.

Understanding the decision-making processes behind impulsive choices is crucial for marketers aiming to capitalize on impulse buying. By aligning their marketing strategies with cognitive biases and heuristics, they can create an environment that triggers impulsive purchases and influences consumer behaviour.

In conclusion, impulse buying is driven by various psychological triggers. Emotions and mood states, personality factors, and cognitive processes all contribute to the impulsive decision-making process. By leveraging these triggers effectively, marketers can capitalize on consumers' impulsive tendencies and drive sales.

### *Situational Triggers in Impulse Buying Behaviour*

Impulse buying behaviour is influenced not only by psychological factors but also by situational triggers. The environment, time factors, and social influences all play a significant role in stimulating impulsive purchases. This note explores three key aspects of situational triggers: store environment, time factors, and social influences.

### **1 Store Environment:**

The store environment encompasses factors such as store layout, design, and atmospherics, which can influence impulse buying behaviour. Retailers strategically design their store layouts to encourage exploration and maximize exposure to products. Placing enticing products or promotional displays near high-traffic areas can capture consumers' attention and trigger impulsive purchases.

Store design and atmospherics also play a crucial role. Pleasant scents, appealing music, and comfortable lighting can create a positive ambience, enhancing consumers' moods and increasing their likelihood of making impulsive purchases. Additionally, the use of visually attractive displays, vibrant colours, and engaging product placements can further stimulate impulsive buying behaviour.

### **2 Time Factors:**

Time-related factors can significantly impact impulse buying behaviour. Time pressure and limited availability create a sense of urgency, increasing the likelihood of impulsive purchases. Limited-time offers, flash sales or countdown timers can create a fear of missing out (FOMO) and prompt consumers to make quick, impulsive decisions.

Seasonal and holiday influences also play a role in impulse buying. During festive seasons or holidays, consumers may be more inclined to make impulsive purchases as they are influenced by the celebratory atmosphere and the desire to engage in gift-giving or self-rewarding behaviours. Retailers often offer special promotions or discounts during these periods to capitalize on consumers' heightened impulsiveness.

### **3 Social Influences:**

Social influences have a significant impact on impulse buying behaviour. Peer pressure and social validation can play a crucial role in driving impulsive purchases. Consumers may feel compelled to buy certain products or brands because their peers or influencers endorse them. Social media platforms further amplify these influences, as consumers observe others' purchases and are influenced by the desire to fit in or be part of a trend.

The presence of others in a retail setting can also influence impulse buying. Observational learning occurs when individuals observe others making impulsive purchases, which can lead to a mimicry effect. Seeing others engage in impulsive buying behaviour can normalize such actions and encourage individuals to follow suit.

Understanding situational triggers is essential for retailers and marketers seeking to leverage impulse buying behaviour. By strategically manipulating the store environment, capitalizing on time-related factors, and harnessing social influences, they can create an environment that encourages impulsive purchases and drives consumer behaviour.

In conclusion, situational triggers significantly influence impulse buying behaviour. The store environment, time factors, and social influences all contribute to stimulating impulsive purchases. By creating an appealing store environment, leveraging time-related factors, and capitalizing on social influences, retailers can maximize their opportunities to influence consumers' impulsive buying behaviour.

## ***Marketing-Related Triggers in Impulse Buying Behaviour***

Marketing strategies and techniques play a crucial role in influencing impulse buying behaviour. Marketers employ various triggers to capture consumers' attention, evoke desire, and ultimately drive impulsive purchases. This note explores three key aspects of marketing-related triggers: advertising and promotions, product characteristics, and online shopping factors.

### **1 Advertising and Promotions:**

Advertising and promotional techniques are effective triggers for impulse buying behaviour. Marketers use persuasive tactics and emotional appeals to create a desire for products or services. They may highlight the benefits, unique selling points, or emotional connections associated with the product to entice consumers. Emotional appeals, such as creating a sense of happiness, nostalgia, or aspiration, can evoke immediate desires and lead to impulsive purchases.

Limited-time offers and discounts are particularly effective in triggering impulsive buying behaviour. Creating a sense of scarcity or urgency by offering time-limited promotions or limited stock availability can drive consumers to make quick purchase decisions before the opportunity passes. Flash sales, daily deals, or exclusive discounts can create a fear of missing out (FOMO) and increase the likelihood of impulsive purchases.

### **2 Product Characteristics:**

Product characteristics also play a significant role in triggering impulse buying behaviour. Novelty and uniqueness can be powerful motivators for impulsive purchases. Consumers are often attracted to products that offer something new, different, or exclusive. Limited-edition items, special editions, or products with unique features can create a sense of novelty, prompting consumers to make impulsive purchases to experience something exclusive or different from the norm.

Product packaging and aesthetics also contribute to impulse buying. Attractive and visually appealing packaging can capture consumers' attention and generate immediate desire. Eye-catching designs, vibrant colours, and high-quality packaging can create a positive impression and stimulate impulsive purchases.

### **3 Online Shopping Factors:**

Online shopping has its own set of triggers for impulse buying behaviour. Convenience and ease of purchase are significant factors. With just a few clicks, consumers can make impulsive purchases without the need to physically visit a store. Seamless checkout processes, simplified payment methods, and user-friendly interfaces contribute to the ease of making impulsive purchases online.

Personalized recommendations and targeted advertising also play a role in driving impulse buying behaviour online. By analysing consumer behaviour and preferences, online platforms can provide personalized product suggestions or targeted advertisements that align with individual interests. This personalization can create a sense of relevance and increase the likelihood of impulsive purchases.

In conclusion, marketing-related triggers significantly impact impulse buying behaviour. Advertising and promotions employ persuasive techniques, limited-time offers, and emotional appeals to drive impulsive purchases. Product characteristics, such as novelty, uniqueness, and appealing packaging, attract consumers' attention and stimulate impulsive buying. Online shopping factors, including convenience and personalized recommendations, contribute to impulsive purchases in the digital realm. By leveraging these triggers effectively, marketers can capitalize on consumers' impulsive tendencies and drive sales.

### ***Implications and Consequences of Impulse Buying Behaviour***

Impulse buying behaviour can have significant implications and consequences for individuals, as well as for the broader financial and marketing landscape. This note explores two key aspects of the implications and consequences of impulse buying: financial and economic impact, and marketing strategies.

#### **1. Financial and Economic Impact:**

Impulse buying behaviour can have both immediate and long-term financial consequences. Increased spending and debt are common outcomes of impulsive purchases. When individuals make unplanned purchases on a whim, they may exceed their intended budget and accumulate unnecessary expenses. This can lead to financial strain, especially if impulsive buying becomes a regular habit.

Moreover, impulse buying often leads to post-purchase regret and dissatisfaction. Individuals may experience buyer's remorse once the initial excitement wears off, realizing that they made impulsive purchases that were not truly necessary or aligned with their long-term goals. This regret can contribute to feelings of dissatisfaction and frustration, further impacting overall well-being.

From an economic perspective, impulse buying behaviour can drive consumer spending and contribute to economic growth. Retailers and businesses benefit from impulsive purchases as they generate increased sales. However, if excessive impulse buying leads to unsustainable levels of consumer debt, it can have negative consequences for individuals and the broader economy.

#### **2. Marketing Strategies:**

Understanding consumer behaviour related to impulse buying is crucial for marketers to develop effective marketing campaigns. By studying the triggers, motivations, and decision-making processes behind impulse buying behaviour, marketers can tailor their strategies to target specific consumer segments effectively. This understanding enables marketers to create persuasive messages, leverage situational triggers, and utilize marketing techniques that align with consumers' impulsive tendencies.

Additionally, targeted interventions can be implemented to curb excessive impulse buying and promote responsible consumption. Marketers can incorporate strategies to encourage self-control and enhance consumers' awareness of their impulsive tendencies. This may involve providing information about the consequences of impulsive buying, promoting budgeting and financial planning, or offering alternative solutions to fulfil immediate desires without resorting to impulsive purchases.

By employing ethical marketing practices, such as transparent advertising and promoting responsible consumption, marketers can help mitigate the negative implications of impulse buying and contribute to consumer well-being.

In conclusion, impulse buying behaviour has implications and consequences that extend beyond the individual level. Financial and economic impacts include increased spending, debt, and post-purchase regret. Marketing strategies can be tailored to understand and leverage consumer behaviour, while also implementing interventions to promote responsible consumption. By addressing these implications and consequences, individuals can make more informed purchase decisions, and marketers can foster a healthier and more sustainable consumer landscape.

Conclusion: Impulse buying behaviour is a fascinating area of study that explores the psychological, situational, and marketing-related triggers that influence consumers to make unplanned, spontaneous purchases. This note provides a summary of key findings, suggestions for future research, and the overall implications for businesses and consumers.

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## CONCLUSION

Throughout this exploration of impulse buying behaviour, several key findings have emerged. Firstly, psychological triggers such as emotions, mood states, personality factors, and cognitive processes significantly influence impulse buying decisions. Emotions and mood play a role in both positive and negative ways, personality traits impact impulsive tendencies, and cognitive biases and heuristics affect decision-making processes.

Situational triggers, including store environment, time factors, and social influences, also contribute to impulse buying behaviour. Store layouts, time pressure, limited availability, peer pressure, and observational learning all play a role in stimulating impulsive purchases.

Marketing-related triggers, such as advertising and promotions, product characteristics, and online shopping factors, further influence impulse buying behaviour. Persuasive techniques, limited-time offers, novelty, attractive packaging, convenience, and personalized recommendations all impact consumers' impulsive tendencies.

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## SUGGESTIONS

While significant progress has been made in understanding impulse buying behaviour, there are still areas that warrant further research. For instance, exploring the interplay between different psychological triggers and situational factors could provide deeper insights into the complexity of impulsive decision-making. Additionally, investigating the impact of cultural and societal influences on impulse buying behaviour could offer valuable cross-cultural perspectives.

Further research could also focus on the long-term consequences of impulse buying, such as the effects on financial well-being, debt management, and consumer satisfaction. Understanding how impulsive purchases impact individuals' overall quality of life and the broader economy would provide valuable insights.

### *Overall Implications for Businesses and Consumers:*

The findings on impulse buying behaviour have several implications for both businesses and consumers. For businesses, understanding the triggers and motivations behind impulse buying can inform marketing strategies to effectively capture consumers' attention and drive sales. Marketers can tailor their approaches to leverage psychological, situational, and marketing-related triggers to influence impulsive purchasing behaviour.

For consumers, awareness of the psychological and situational triggers can help individuals make more informed purchase decisions. Recognizing personal impulsive tendencies, practicing self-control, and implementing strategies to curb impulsive buying can contribute to better financial management and overall satisfaction with purchases.

Ultimately, finding a balance between fulfilling immediate desires and making responsible, mindful purchasing decisions is essential for both businesses and consumers. By recognizing and understanding the factors influencing impulse buying behaviour, businesses can develop strategies that align with consumer tendencies, while consumers can make more conscious choices and exercise self-control.

In conclusion, impulse buying behaviour is a multidimensional phenomenon influenced by psychological, situational, and marketing-related triggers. By gaining insights into these triggers, businesses and consumers can navigate the realm of impulse buying more effectively, resulting in mutually beneficial outcomes. Future research can further expand our understanding of this behaviour and its broader implications for society.

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## REFERENCES

- <https://www.emerald.com/insight/content/doi/10.1108/07363760010341045/full/html>
- <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-2370.2012.00345.x>
- <https://journals.sagepub.com/doi/abs/10.1177/0972150917713368>
- [https://d1wqtxts1xzle7.cloudfront.net/35665255/V2I9-0025-libre.pdf?1416536702=&response-content-disposition=inline%3B+filename%3DStudy\\_of\\_Impulse\\_Buying\\_Behavior\\_of\\_Cons.pdf&Expires=1707507713&Signature=IEgMO-as-iPp50TvN41k0rMFW5b3JaczJWtXL0yh0KPnBpYFtDZwZpUm9Rasl8pT2ITonzNrZFnhcfIKqJ0X2cIWvzqzQk-efz2PGOGDknVk3lyIA2lutVftojGB5XoHcnR~TIMglAOsT1kDYrGZZtA5EcSuu8ZeN-b8bAHDEzFIGFQWbgwxbeCGJtVOqYhxLiFADe20ZuWnj38WIdjD9eLmw9AUP2LREdGhYDPnUWXbI6JEAQBhoyw49biJpmjqa2C0c4MTa03hfvVON~3VS9cxhPTSGLSb7xKcoiDQeM00wAguqojWV6l~CADq7K9O8Rsn4YN34Kopl4-yWywqA\\_&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA](https://d1wqtxts1xzle7.cloudfront.net/35665255/V2I9-0025-libre.pdf?1416536702=&response-content-disposition=inline%3B+filename%3DStudy_of_Impulse_Buying_Behavior_of_Cons.pdf&Expires=1707507713&Signature=IEgMO-as-iPp50TvN41k0rMFW5b3JaczJWtXL0yh0KPnBpYFtDZwZpUm9Rasl8pT2ITonzNrZFnhcfIKqJ0X2cIWvzqzQk-efz2PGOGDknVk3lyIA2lutVftojGB5XoHcnR~TIMglAOsT1kDYrGZZtA5EcSuu8ZeN-b8bAHDEzFIGFQWbgwxbeCGJtVOqYhxLiFADe20ZuWnj38WIdjD9eLmw9AUP2LREdGhYDPnUWXbI6JEAQBhoyw49biJpmjqa2C0c4MTa03hfvVON~3VS9cxhPTSGLSb7xKcoiDQeM00wAguqojWV6l~CADq7K9O8Rsn4YN34Kopl4-yWywqA_&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA)
- <https://link.springer.com/article/10.1007/s40622-017-0168-2>