

Toward a Precise, Consensual, and Comprehensive Definition of Online Antisocial Behavior*

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Abstract

In recent years, people's daily lifestyles and habits have undergone global changes. Individuals have become increasingly connected, dependent, and reliant on the Internet and technology. Consequently, technological development has not only altered various aspects of people's lives and activities but has also changed how society functions. This transformation has revealed both the positive and negative sides of society and individuals, as they transition from the real world into the virtual world in many ways. Indeed, as it paves the way for social behaviors to flourish, it has also evolved into fertile ground for antisocial behavior. Antisocial behavior is generally seen as any conduct that violates social norms and harms society and individuals. However, there is neither a common definition of it nor a consensus on what antisocial behavior is. This uncertainty extends as well to online antisocial behavior that is present on the Internet. Despite the challenges posed by the diversity and evolution of online platforms, addressing and preventing online antisocial behavior remains a crucial task. In this paper, we are trying to define online antisocial behavior. Our approach begins by studying what antisocial behavior is through interdisciplinary literature (psychology, sociology, law). Then, we turned to online antisocial behavior.

Keywords

Web platforms, Online Antisocial Behavior, Digitalization, Social media, World Wide Web, Internet

1. Introduction

Since the dawn of humanity, humans have tended to communicate and interact with each other by nature. They have an innate need for connection that drives them to establish and maintain interpersonal relationships throughout their lives [1]. Individuals form relationships, family, and friends and build communities. Before the rise of the internet, human behavior was predominantly shaped by in-person interactions and the physical world [2]. To achieve daily activities such as shopping, learning, and playing, individuals are usually required to leave their homes and do it physically. Nowadays, it has become a fact that people are dependent on technologies and the Internet even in their daily lives [3]. Billions of people use the internet daily as an integral part of their lives [4]. The number of people over the globe using the internet and new technologies is constantly increasing. Indeed, there were 413 million Internet users worldwide in 2000, according to Internet World stats [5]. As of October 2023, it has been estimated that about 5.3 billion Internet users worldwide, which represents nearly two-thirds of the global population [6]. Out of these internet users, over 4.8 billion, or nearly 62% of the global population, were

using social media, making it the most used internet platforms. The internet has significantly altered human behavior. It has merged the physical and digital worlds, influencing our social interactions [7]. Indeed, many aspects of our lives have changed, including the way we communicate and interact with each other, how we learn, teach, work, entertain, and do business. Furthermore, it has led to changes in individual behaviors [8], including antisocial behavior [9]. Antisocial behavior, which is behavior that is contrary to social norms and often involves causing harm or annoyance to others [9], has also found its way to the internet. This late, provides a platform for the rapid spread of antisocial behavior, making it a global issue [9]. In addition, with the increasing number of people using the Internet, the number of those who may be subject to such behavior increases. Thus, the importance of defining online antisocial behavior cannot be overstated. This paper discusses what online antisocial behavior is, and we try to define it. This task, defining online antisocial behavior, helps in recognizing and understanding such behaviors, which is the first step towards addressing them. It's key to developing effective therapeutic interventions and essential for legal and policy-making purposes. Lastly, it aids in research, allowing for the accurate study of the causes, consequences, and prevalence of antisocial behavior [10, 11]. However, defining online antisocial behavior is a complex task due to the multifaceted nature of the internet, its globality, and its rapidity [11, 10, 12]. Globality can create cultural clashes over what is antisocial. Rapidity can make definitions obsolete as new platforms and behaviors emerge.

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Despite these challenges, defining online antisocial behavior is vital.

The remainder of the paper is organized as follows: Section 2 presents the methodology followed in this work. Section 3 provides a discussion of the existing definition of antisocial behavior through interdisciplinary literature. Section 4 presents a discussion of what online antisocial behavior is in computer science literature, as well as its forms. Finally, Section 5 concludes this review paper and presents perspectives for future work

2. Methodology

This review paper has the objective of understanding "What is Online Antisocial Behavior?" and providing a definition for it. We used Google Scholar and Semantic Scholar as search engines to uncover current evidence and enhance our understanding of the topic. We wanted to be able to search for scientific articles quickly and easily on multiple platforms, including the Web of Science and Scopus databases. Furthermore, Google was employed to search for information on the topic from online dictionaries and various organizations. In our paper, we focused solely on English-language papers, but we did not limit our search by article type, publication date, or discipline. In addition to research papers, we also used information and material from relevant organizations and government agencies. In order to define online antisocial behavior, we need not only to encompass more than just the already-existing definitions in the literature. But also, to analyze the concept in a more detailed manner. To that purpose, we attempted to offer a thorough summary by addressing the following questions: (1) *What is Antisocial Behaviour?* and (2) *What is Online Antisocial Behaviour?* First, we must understand what antisocial behavior is in general. We searched the scientific literature to answer it, and various papers from different disciplines (including psychology, sociology, and law) were analyzed. In addition, and for better understanding, before searching for what antisocial behavior is, we examined the literal and scientific definitions of the word behavior and antisocial. Once we have a good understanding of these basic concepts, we then begin to analyze the concept of online antisocial behavior. Finally, to define what antisocial behavior is in our field of study, we searched and analyzed several papers in the scientific literature of our field.

3. Understanding Antisocial Behavior

Antisocial behavior (ASB) is a multidisciplinary concept, present in various sciences and fields such as sociology,

psychology, and law. As with many terms present in different domains, it is challenging to provide a general definition for antisocial behavior. Therefore, in an effort to understand this concept, we explore various dictionaries, books, and papers. Before delving into the definition of "antisocial behavior", we will start with the definitions of the two terms "antisocial" and "behavior". We begin by presenting and discussing the literal definition of each term, followed by the scientific one."

3.1. Behavior

For the term *behavior*, different definitions are provided by different dictionaries. The Oxford Dictionary¹ defines it as the manner in which an individual behaves or conducts themselves, particularly in interactions with others [13]. This definition encompasses both individual actions and interactions with others. The Macmillan dictionary² [14] is more restrictive, focusing on how someone acts. The Longman Dictionary³ [15] The Longman Dictionary is similar but includes animal behavior. The Merriam-Webster dictionary⁴ provides two definitions. The first one is close to the one provided by the Oxford dictionary. It focuses on individual behavior, describing it as the manner in which someone conducts themselves or behaves. It addresses the observable actions and demeanor of an individual, emphasizing personal conduct and behavior as key components of this definition [16]. The second definition broadens the scope to encompass how individuals, groups, or species behave and respond to their environment. It highlights the dynamic interaction between entities and their surroundings and environment. It also emphasizes the adaptive or responsive nature of their actions in the context of the environment they inhabit [16]. Also, the definitions of the term "behavior" given in [17, 18] are almost similar to those mentioned above.

In biology, the concept of "behavior" has been defined in various ways, leading to some uncertainty. For instance, Tinbergen in his book "The Study of Instincts" defines behavior as "the total movements made by the intact animal" [19]. This definition the definition emphasizes the importance of considering the whole animal when studying its behavior. This means taking into account the animal's physical characteristics, its environment, and its past experiences. In Starr's definition from [20], he emphasizes that the behaviour is not simply a reaction to stimuli (both external and internal) but involve various biological systems. Levitis et al. [21] present a boarder definition, describing behavior as the manner in which living organisms respond to various stimuli, with these

¹Oxford Learner's Dictionary: <https://www.oxfordlearnersdictionaries.com/>

²<https://www.macmillandictionary.com/dictionary>

³<https://www.ldoceonline.com/dictionary>

⁴<https://www.merriam-webster.com/dictionary>

responses being internally coordinated and are distinct from the organism's developmental changes. This definition is applicable to both individuals and groups of organisms. Furthermore, it includes not only the organism's responses to stimuli but also the coordination of these responses, and distinguishes them from changes inherent to an organism's growth or development. In psychology, behavior is also often defined in various ways. According to the American Psychological Association (APA) Dictionary of Psychology [22], two definitions for behavior had been provided. The first definition is broad, encompassing both observable actions and internal processes within an organism, including thoughts and feelings in response to external and internal stimuli. This definition acknowledges that behavior extends beyond merely observable actions into internal cognitive processes and subjective experiences as integral components of an organism's behavioral repertoire. The second one, is more restrictively, it describe behavior the observable and measurable aspects of actions or functions in response to controlled stimuli [22]. This definition focuses on objective, observable actions in response to controlled stimuli, highlighting the empirical observation and experimentation nature of behavior. However, it may neglect the complexity of human behavior by not fully accounting for internal mental processes and subjective experiences, as seen in the previous definitions. Cardwell, in his book "Dictionary of Psychology" [23], defines it more broadly as "*a term general which refers to any response from an organism that can be measured*". Well, the author refers to behavior as *any answer*, so it can be of different nature and towards anything (people, environment, etc.). Also, in this definition, *an organism* can refer to an individual (human, animal) or a group. In addition, the author adds that "behavior" is something that can be measured, which is not present in the definitions mentioned above. Another definition was given by Colman [24], where he characterizes behavior as the physical activity of an organism, encompassing both overt bodily movements and internal physiological processes, including glandular activities. This definition encompasses both observable and non-observable behaviors, including all the ways in which an organism interacts with its environment

In sociology, as in other sciences, there are several definition for the concept behavior. The Open Education Sociology Dictionary defines behavior as the way an individual or group behaves when interacting with others or events [25]. This definition focus the social interactions emphasizing that behavior is not just about people's actions but also about how how and in what context they do it. Uher's definition describe behavior as how an organism's actions or changes are influenced by external factors or conditions in their immediate environment [26]. In other terms, behavior is a dynamic process that can change in response to the immediate environment.

The definition recognize the functional relationships between an organism's actions and the external stimuli in its immediate surroundings. While the first definition emphasizes behavior within social interactions, Uher's definition is broader, encompassing external changes or activities influenced by external phenomena. Together, these definitions offer complementary insights into the multifaceted nature of behavior.

In general, behavior refers to the observable and measurable actions, activities, or processes of an individual or group, often initiated in response to internal or external stimuli.

3.2. Antisocial

Regarding the term *antisocial*, it also has a multitude definitions as for the term *behavior*. The Collins dictionary⁵ [27] gave four definitions for this concept: "*contrary or injurious to the interests of society in general; against the basic principles of society; harmful to the welfare of the people generally; avoiding association with others, unsociable*" [27]. In general, they collectively describe "antisocial" as 'behaviors or traits that are in opposition to something'. While each one emphasizes different facets of what is considered antisocial, the three first definitions are close. The first one: 'interests of society', the second one: 'basic principles of society', and the third one: 'wellbeing of others'. While the fourth one 'sociability'. The Oxford dictionary associates antisocial with actions or behaviors that cause harm or annoyance to individuals or society in general [27]. The Cambridge dictionary definition of antisocial encapsulates two aspects: the harmful impact on society and avoiding social interactions [28]. The definition provided by Merriam Webster dictionary [29] as well describes two aspects of the antisocial: unsociable or tendency to avoid the company of others, and hostility to society. We constat that the definition from [28] and the one provided by [29] are very close to the precedent ones given above by [30] and [27]. These definitions emphasize two general aspects: hostility toward and avoiding social interactions. The second aspect is close to the definition of antisocial given by [31] which describes antisocial as indifference or disregard toward both individuals and society. However, we have to highlight that those last definitions are more close to the definition of "asocial". Indeed, the Cambridge dictionary define asocial as "not interested in forming social groups or connections with others" [32]. The Merriam Webster dictionary, define explicitly antisocial as unsocial and asocial [29, 33]. As we can observe, there are two main points of view for the meaning of "antisocial": the first considers it a synonym of 'asocial', while the second distinguishes between the two terms. We have highlighted the difference in mean-

⁵<https://www.collinsdictionary.com/dictionary/english>

ing between the literary definitions of 'antisocial' and 'asocial,' but we won't delve into this point further, as it is not the focus of our work. Besides, we have to mention that the subject of the difference between the two concepts has already been discussed in the literature by other scholars such as [34, 35, 36, 37, 38]. From the scientific references that we studied, we found that there is a difference between In psychology, "antisocial" is in itself a subjective term [23], but there is general agreement that behaviors such as aggression, harm, and discrimination against others are considered antisocial. [23]. In the book 'The dictionary of psychology' the author defines it as "opposed to society or to existing social organization and moral codes" [39]. In this definition, antisocial means being against common morals and society in general, social norms, rules, structures, or organizations.

Upon examining the various definitions provided above, it becomes evident that the term "antisocial" is predominantly associated with, or indicative of, a certain type of behavior. This behavior is referred to as "antisocial behavior," which we will discuss in the next section.

3.3. Antisocial Behaviour

As mentioned before, antisocial behavior is a multidisciplinary concept that we find in different scientific fields. Thus, several definitions were found with no consensus on them [40].

In psychology, antisocial behavior is defined as a psychological condition characterized by a significant deficiency in the development of ethical or moral principles within an individual's personality [41]. This definition suggests that individuals exhibiting antisocial behavior may lack a proper foundation for understanding and adhering to societal ethical norms and moral values. A book entitled "A dictionary of psychology" by Colman [24] agrees with the precedent definition given by Basavanna [41] in the point that ASB is a form of personality disorder but has another view point about its characteristics. In this definition, ASB is characterized by a permeant pattern of behaviors that involve exploitation, violation, hurt, or manipulation of others or their rights without feeling any guilt or remorse. Corsini's Psychology Dictionary (1999) [39] defines antisocial behavior as actions that are harmful or disruptive and violate social norms and legal boundaries. This definition highlights the harmful and disruptive nature of such actions. It emphasizes that antisocial behavior is not simply a matter of violating social norms but also involves intentional acts that disregard the rights and well-being of others. Corsini agrees with Colman on the point that ASB disregards other individuals' rights and well-being. Cardwell defines antisocial behavior as any behavior within society that is considered disruptive or harmful [23]. This

definition of antisocial behavior emphasizes the broad and subjective nature of such actions. It suggests that any behavior that is perceived as harmful or disruptive to a group or society can be considered antisocial. This can encompass a wide range of behaviors that can negatively affect social harmony, from minor infractions to serious crimes. Another definition by [42] states that antisocial behavior manifests when an individual deliberately causes harm to the property or animals of others. This emphasizes the deliberate nature of the behavior in harming others and highlights the willful intent to cause harm as a key aspect of antisocial behavior. These definitions highlight the harmful and disruptive nature of antisocial behavior, as well as its intentional harmfulness and pervasive disregard for the rights of others.

Under the UK legislation, antisocial behaviour is defined in the "Crime and Disorder Act 1998" [43] as "acting in a manner that caused or was likely to cause harassment, alarm or distress to one or more persons not of the same household as himself". This definition aims to address behaviors that disrupt the peace, safety, and well-being of individuals beyond the immediate household, such as neighborhoods, workplaces, and schools. Also, it recognizes that ASB can be based on the likelihood of harm. Even if a behavior does not cause immediate harm, if it is likely to cause harm in the future, it can still be considered antisocial. Another definition of antisocial behaviour was given by the same organisation in the "Anti-social Behaviour, Crime, and Policing Act 2014" [44]. This definition is more detailed than the one from 1998's Crime and Policing Act and covers a wider range of behaviors and situations. It identifies three key components: (a) conduct causing harassment, alarm, or distress to any person; (b) conduct capable of causing nuisance or annoyance to someone on their residential premises; and (c) conduct capable of causing housing-related nuisance or annoyance to any person. This definition surpasses its predecessor in the 1998 Crime and Policing Act, providing a more nuanced perspective that considers various dimensions of antisocial behavior, including its impact on individuals, residential spaces, and the broader housing community.

The legal definition of antisocial behavior given by law insider⁶ described it as behavior that induces or has the potential to induce alarm, distress, nuisance, or annoyance to any individual [45]. This definition is focused on the impact of behavior on others and highlights a range of negative effects, including emotional distress, nuisance, and annoyance. It broadens the scope beyond specific aggressive or violent actions to encompass a variety of behaviors that have the potential to disturb or negatively affect individuals in a social context. The definition, as presented in [46], describes antisocial behavior as re-

⁶<https://www.lawinsider.com/>

peated breach of socially established behavioral norms. This definition characterizes antisocial behavior as repetitive and socially deviant. It highlights that antisocial behavior involves persistent violations of accepted societal standards, emphasizing a recurring pattern rather than isolated incidents. In criminology, the authors of [47] describe antisocial behavior as "a catch-all term to describe a range of behaviors, from disruptive neighbors and graffiti to youths congregating on the street. The key aspect of this definition is that it describes antisocial behavior as a "catch-all term", which implies that it encompasses a wide range of actions. The examples given, such as noisy neighbors, graffiti, and groups of youths on the street, imply that it includes serious criminal acts but also includes behaviors that might be seen as a nuisance or disturbance in a community. This definition highlights the breadth of antisocial behavior and its ability to manifest in various forms, often within the context of everyday life. This definition was adopted by other scholars in the literature, such as [48] and [49].

4. What is online antisocial behavior?

Before we began discussing the definition of online antisocial behavior in the literature, we have to point out that we found three terminologies that refer to the "same concept", which are "Online Antisocial Behavior (OASB)", "Antisocial Behavior (ASB)", and rarely "Antisocial Online Behavior (ASOB)". We would like to note that we observed that there are some scholars who use the term "online antisocial behavior" or "antisocial online behavior". Hence, the most commonly used term in the literature was "antisocial behavior." In the following, we use both "antisocial behavior" and "online antisocial behavior" interchangeably to refer to the same concept.

Moor, in his study on the relationship between dark personality traits and antisocial online behavior [50], defines online antisocial behavior as "any deviant behavior that is perpetrated online and has negative online or offline consequences for the target". This definition encapsulates the multifaceted nature of online antisocial behavior, considering its deviant nature, digital context, and the potential for negative repercussions, and highlights its ability to transcend digital boundaries and cause real-world consequences. It aligns with the broader understanding of antisocial behavior in psychology and sociology, emphasizing the negative consequences of such actions on individuals and communities.

In a paper discussing online antisocial behavior and education [51], the author describes antisocial behavior as disturbed conduct marked by covert, visibly hostile, and intentionally aggressive actions toward others and emphasizes the repetition of ethical and social rule viola-

tions regardless of potential consequences. This definition highlights the malicious and destructive nature of antisocial behavior. It suggests that antisocial behavior is not simply a matter of carelessness or negligence but rather a deliberate attempt to harm others, often in a hidden or indirect manner. This characterization underscores the deliberate nature of the aggression and a persistent pattern of behavior that deviates from accepted social norms. This definition aligns with the broader understanding of antisocial behavior in psychology and law, which highlights the willful and intentional disregard for the well-being of others and their social norms.

A recent paper [52] entitled "Moderation, Networks, and Anti-Social Behavior Online", explores the complex relationship between networks, moderation, and antisocial behavior in the online environment and discusses the definition of online antisocial behavior. This paper presented a set of questions that the author tried to answer, and one of those is "What Is ASB, and ASB Online?". In the cited section of [52], the author discusses the identification of antisocial behavior online and the difference between it and offline ASB. According to the author, ASB online can be broadly understood as "behavior that causes harm to individuals or groups or disrupts the functioning of a community". Also, the author reviews various types of ASB online and identifies some factors that may contribute to or enable ASB online, such as anonymity, disinhibition, echo chambers, and network effects.

Thus, we observed that each one of those papers proposed a definition of online antisocial behavior that suits them, their field, and their vision, and used it in their work. They did not discuss nor explore any other definitions from the literature.

In the literature, most scholars working on antisocial behavior typically do not use any explicit definition of it nor explicitly define it, as seen in references like [53, 12]. Some researchers, especially in computer science, used definitions from other domains. For instance, the author in [54] adopted a definition from psychology, specifically from [55]. Others turn to definitions from legislation, as observed in [56, 57], which adopts the definition from the "Crime and Disorder Act" [43] and so on. Furthermore, most scholars, especially in computer science literature, often address it through its types or how it manifest, as demonstrated in works such as [58, 59, 60, 61, 62, 12, 63].

Thus, following our thorough examination and analysis of existing definitions of the previously provided definitions and a comprehensive exploration of various manifestations of antisocial behavior, which will be the focus of a separate study, we introduce our own definition of online antisocial behavior:

"Antisocial behavior is any intentional or unintentional act of harm, disturb, alarm, distress, mislead, or any act that occurs online and has or likely has negative (online or

offline) effects on other individuals or society in general and breaks the law."

Our definition provides a comprehensive view of antisocial behavior, considering eight Key aspects which are:

1. **Broad Scope:** The definition encompasses a wide range of actions that can be considered antisocial. This ranges from unintentional mistakes to intentional acts causing harm, disturbance, alarm, distress, or misleading others, and from intentional acts of harm to unintentional mistakes. It acknowledges the diversity of behaviors that may have negative impacts on individuals or the broader society.
2. **Online Occurrence:** In the definition, we specifically focus on behaviors that occur in the online environment and acknowledge the unique challenges and opportunities presented by the digital world.
3. **Negative Impact:** We wanted to emphasize the negative consequences of antisocial behavior, highlighting its potential to cause harm, distress, or other negative effects on individuals, society, and the legal system. This includes both direct and indirect harm, encompassing emotional distress and violations of laws and regulations.
4. **Online and Offline Consequences:** We saw that it is important to emphasize the potential consequences of antisocial behavior, not only in the online world but also in the real one. We acknowledge that the digital world can spill over into the physical world and recognize that actions originating on the internet can have actual real-world impacts. As an example of the devastating consequences that may have online antisocial behavior in the real world, consider the case of Hannah Smith, a teenager of 14 who committed suicide by hanging herself after negative comments were posted on her page on the question/answer platform Ask.fm [64].
5. **Intentional and Unintentional Acts:** We recognize that both intentional and unintentional actions may be antisocial. We acknowledge that harm can result from actions that were either deliberately planned or occurred inadvertently, and that not all ASB is motivated by malicious intent. Also, individuals may engage in harmful behavior without fully understanding the consequences, realizing the impact on others, or violating legal boundaries.
6. **Potential Harm:** Antisocial behavior may have the potential for harm, even if it is not immediately apparent or intended. This recognizes that

ASB can have a ripple effect, causing unforeseen consequences, harm, and potential legal repercussions that may not be immediately evident. For instance, in the case of false information and propaganda, false information or a rumor may cause harm even years later.

7. **Legal Implications:** We include acts that violate laws and acknowledge that ASB can manifest in forms that cross legal boundaries and have legal consequences. This underscores the seriousness of certain actions that may lead to legal consequences and highlights that certain forms of online antisocial behavior are not just unethical but also illegal.
8. **Social Impact:** We want to emphasize that the scope of online antisocial behavior extends beyond individual harm to encompass the potential impact on society as a whole. It can contribute to a hostile, disrespectful, and unsafe online environment, erode trust and civility, undermine societal norms and values, and potentially lead to legal challenges and societal disruptions. This acknowledges that online actions can have wide-ranging consequences for communities and societal well-being.

5. Conclusion

In literature, we found that "antisocial behavior" is a term whose origins tend to be in the social sciences. Indeed, long ago, ASB was present in many of its branches, such as psychology, sociology, law, etc. However, it is not only bound for these sciences; it is also present in "computer sciences" as "online antisocial behavior". Indeed, OASB has gathered a lot of interest in the literature and especially in computer science these last few years due to the huge development and use of the internet. Being a multidisciplinary concept, there is no common definition of online antisocial behavior. The importance of defining online antisocial behavior lies in its utility for understanding, managing, and researching such actions, as well as its implications for law and policy-making. Despite the complexities of defining antisocial behavior, particularly in the digital realm, it's a vital endeavor. In this paper, we tried to discuss the existing definitions of online antisocial behavior. We discussed and detailed some of the existing definition of 'Behavior', 'antisocial', 'antisocial behavior' and 'online antisocial behavior'. The table 1 present some of the definitions. We also proposed a definition of it that we tried to make comprehensive and encompass various dimensions. Our definition of antisocial behavior (ASB) is in the online environment, it is comprehensive and captures a broad range of harmful actions that can occur in the digital world and their po-

tential consequences for individuals, society, and the law. It highlights the pervasiveness of ASB online, extending beyond intentional acts of harm to include unintentional mistakes and actions that may not be immediately recognized as harmful or unlawful.

Table 1: Some literature definitions of 'Behavior', 'antisocial', 'antisocial behavior' and 'online antisocial behavior'.

Concept	Definition
Behaviour	<p>In dictionaries "the way in which someone conducts oneself or behaves; the response of an individual, group, or species to its environment" [16]; "the way in which one acts or conducts oneself, especially towards others" [13]; "the way that someone behaves" [14]; "the things that a person or animal does" [15]; "specialized the way that a person, an animal, a substance, etc. behaves in a particular situation or under particular conditions" [17]; "In science, the behavior of something is the way that it behaves." [18];</p> <p>In biology, "the total movements made by the intact animal" [19]; "A response to external and internal stimuli, following integration of sensory, neural, endocrine, and effector components" [20]; "the internally coordinated responses (actions or inactions) of whole living organisms (individuals or groups) to internal and/or external stimuli, excluding responses more easily understood as developmental changes" [21] "The way an organism responds to stimulation" [65], "All observable or otherwise measurable muscular and secretory responses (or lack thereof in some cases) and related phenomena such as changes in blood flow and surface pigments in response to changes in an animal's internal and external environment" [66]</p> <p>In psychology "an organism's activities in response to external or internal stimuli, including objectively observable activities, introspectively observable activities, and non-conscious processes" [22]; "any action or function that can be objectively observed or measured in response to controlled stimuli." [22]; "an action, activity, or process which can be observed and measured. Often, these actions, activities, and processes are initiated in response to stimuli which are either internal or external" [67]; "the range of actions and mannerisms made by organisms, systems, or artificial entities in conjunction with themselves or their environment, which includes both observable actions and internal processes such as thoughts and emotions" [68]. "a general term that refers to any response of an organism that can be measured" [23]; "the physical activity of an organism, including overt bodily movements and internal glandular and other physiological processes" [24]</p> <p>In Sociology "how an individual or group acts or conducts themselves when interacting with another individual, group, or event" [25]; "external changes or activities of living organisms that are functionally mediated by other external phenomena in the present moment" [26];</p>
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Table 1 – continued from previous page

Concept	Definition
Antisocial	<p>In dictionaries "1: contrary or injurious to the interests of society in general; 2: against the basic principles of society; 3: harmful to the welfare of the people generally; 4: avoiding association with others, unsociable" [27]; "harmful or annoying to other people, or to society in general" [30]; 1: harmful to society; 2: often avoiding spending time with other people" [28]; 1: averse to the society of others : UNSOCIABLE; 2: hostile or harmful to organized society" [29]; "showing a lack of care for other people or for society in general" [31]; "not interested in forming social groups or connections with others" [32];</p> <p>In psychology "opposed to society or to existing social organisation and moral codes" [39]</p>
Antisocial behaviour	<p>In psychology "any behavior that is considered harmful or disruptive within a group of society" [23]; "behavior that sharply deviates from social norms and also violates other people's rights" [69]; " personality disorder involving a marked lack of ethical or moral development" [41]; "Aggressive, impulsive, and sometimes violent actions that flout social and ethical codes such as laws and regulations relating to personal and property rights" [39]; "Acts intended to harm or disadvantage another individual, and can negatively affect the well-being of others" [70]; "a personality disorder characterized by a pervasive pattern of disregard for and violation of the rights of others" [24]; "antisocial behavior occurs when a person willingly and intentionally harms other people, property, or animals" [42];</p> <p>In Law "acting in a manner that caused or was likely to cause harassment, alarm or distress to one or more persons not of the same household as himself" [43]; "(a)conduct that has caused, or is likely to cause, harassment, alarm or distress to any person, (b)conduct capable of causing nuisance or annoyance to a person in relation to that person's occupation of residential premises, or (c)conduct capable of causing housing-related nuisance or annoyance to any person" [44] ; "behaving in a way which causes, or is likely to cause, alarm, distress, nuisance or annoyance to any person" [45]; "recurrent violation of socially prescribed patterns of behavior" [46];</p> <p>In Criminology "a catch-all term to describe anything from noisy neighbours and graffiti to kids hanging out on the street" [47];</p>
Online Antisocial behaviour	<p>"any deviant behavior that is perpetrated online and has negative online or offline consequences for the target" [50]; "disturbed behavior characterized by covert, visibly hostile and intentional aggression towards others. This includes repeated violations of ethical and social rules, no matter what the consequences might be" [51]; "behavior that causes harm to individuals or groups, or disrupts the functioning of a community" [52];</p> <p>Our definition <i>"Antisocial behavior is any intentional or unintentional act of harm, disturb, alarm, distress, mislead, or any act that occurs online and has or likely has negative (online or offline) effects on other individuals or society in general and breaks the law."</i></p>

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