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Jessecae K. Marsh, Andres De Los Reyes, and Alexa Wallerstein


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Jessecae K. Marsh
Lehigh University

Andres De Los Reyes
University of Maryland at College Park

Alexa Wallerstein
Lehigh University

Decisions about whether a person is in need of mental health care are often made by laypeople with no training in the identification of mental health concerns. For example, the parent of a child displaying problematic behavior has to decide whether this behavior is likely related to mental health concerns and necessitates professional care. The process of identifying mental health concerns is made more complicated by the rich background of real-world environmental factors or contexts in which concerns can present—contexts that might or might not relate to the presence of mental health concerns. We investigated whether laypeople use contextual information to make judgments regarding childhood mental health disorder symptoms. In Experiment 1, we demonstrated that laypeople's judgments of the likelihood of a mental disorder are influenced by non-diagnostic contextual information that surrounds symptoms of the disorder. In Experiment 2, we demonstrated that providing a causal origin for such disorder symptoms accentuates the use of context, regardless of the nature of the causal process (i.e., environmental vs. biological). These findings indicate that contextual influences on judgments about mental health concerns may reflect a more general set of mental reasoning processes than indicated by previous work focused on clinicians' judgments. Consequently, these findings have important implications for how we think about the influence of contextual information on decision making more generally as well as for improving our ability to both reliably identify children in need of mental health care and increase children's access to such care.

Keywords: ADHD, clinical decision making, conduct disorder, context effects, lay judgments

Everyday decision making involves sorting through the large amount of information at hand to categorize what is relevant for a given decision and what is not (Dawes & Corrigan, 1974; Klayman, 1988; Simonsohn, 2007). One arena of real-world decision making where this process poses obvious challenges is in making decisions regarding mental health care. For example, a person trying to decide if a loved one's anxiety is of problematic levels has to make this decision while processing information that may be directly relevant to the decision (e.g., stress in a loved one's workplace) as well as information that probably should not be considered in making a decision (e.g., the state of the loved one's seasonal allergies). Understanding decision making under these circumstances has important implications for clinical assessment, as significant others in patients' lives (e.g., parents, for child patients; spouses, for adult patients) often play a key role in determining not only which patients receive care (Hunsley & Lee, 2010) but also in evaluations of the effectiveness of such care (De Los Reyes, Thomas, Goodman, & Kundey, 2013; Weisz, Jensen Doss, & Hawley, 2005). This article explores whether people are influenced by the information that surrounds symptoms of disorder when making decisions in the domain of mental health.

Research on decision making in mental health has focused on the decision making of experts within the domain (e.g., Dawes, Faust, & Meehl, 1989; Garb, 2005). However, the early detection of features indicative of mental health concerns often relies on people with no training in the domain of mental health (i.e., laypeople). A patient's first contact with a mental health professional often follows a decision by a layperson that the patient's behavior warrants care (e.g., one spouse advising the other that his anxiety warrants a visit to a psychologist). This facet is most clearly seen in the mental health care of child and adolescent patients (collectively referred to as "children" unless otherwise specified). For most children, the first person to identify the child's mental health concerns was someone who may not be trained in the process of identifying symptoms of a disorder category and making decisions relevant to that care (e.g., child's parent; Hunsley & Lee, 2010). As such, it is crucial to understand how laypeople decide a given behavior is indicative of a mental disorder diagnosis and the appropriateness of care for symptoms of the diagnosis.
In this article, we focus on how laypeople identify individual symptoms as indicators of a mental disorder when they are first encountered. A child who discloses she often feels sad may in the same conversation talk about stress at school, the new neighbor down the street, or a movie she watched at a friend’s house. Likewise, a child may cite a cause for her sadness that could be used as an explanation for the presence of the symptom (e.g., a close friend moved away) or may not cite such a cause. In this way, a signal of disorder may be embedded in contextual information that promotes or prevents the development of the mental health concerns involved (e.g., Cicchetti, 1984; Luthar, Cicchetti, & Becker, 2000) or may not be related to the development of the given mental health concerns (e.g., Mischel & Shoda, 1995). We believe this results in an information-processing problem; that is, how do laypeople separate information about contexts that are likely linked to mental health concerns from information about contexts that are unlikely linked to such concerns?

Initial work on this question has focused on how mental health professionals separate signals of mental health concerns from surrounding non-diagnostic information when limited information is provided about a child. In this work, “non-diagnostic information” referred to pieces of information that surrounded the presentation of a mental health concern but were not formal diagnostic criteria for the specific mental health domain evaluated (e.g., conduct disorder; American Psychiatric Association [APA], 2000, 2013). This information may take the form of environmental circumstances research suggests might be linked to mental health concerns (e.g., friends who are bullies, a father who is a recovered alcoholic) but nonetheless do not comprise actual diagnostic criteria. Professionals were influenced by this contextual information in making decisions about the likelihood a child met criteria for a mental disorder. Specifically, professionals took a given mental disorder symptom as a strong sign the child’s behavior warranted a mental disorder diagnosis if that symptom occurred alongside non-diagnostic, but problematic, contexts. Professionals took the exact same symptom as a weak sign of a mental disorder diagnosis if the surrounding contextual information described equally non-diagnostic contexts that were perceived as non-problematic (De Los Reyes & Marsh, 2011). In this way, background non-diagnostic information was influential in professionals’ assessments of childhood mental health concerns. Importantly, in this study, participants did not incorporate context equally across symptoms but were instead influenced by context more for some symptoms than others. Additionally, clinicians did not agree as to which symptoms were more or less influenced by context. This is an important observation of mental health professionals’ judgments. That is, professionals incorporate into their mental health judgments information about the contexts or environmental circumstances that they believe to be linked to the mental health concerns under evaluation but seem to do this in idiosyncratic ways.

Would lay participants be similarly influenced by contextual information? As mental health professionals gain experience in treating and diagnosing patients, they develop rich theories of how features of a given mental disorder interconnect (Ahn, Levin, & Marsh, 2005; Kim & Ahn, 2002; for more general descriptions, see Ericsson & Lehmann, 1996). As a clinician sees more and more patients with a given diagnosis, she may gain a deep understanding of contexts that tend to co-occur with dysfunctional behavior but do not comprise official criteria for the classification and diagnosis of a mental disorder. This can be thought of as an example of implicit category learning (e.g., Ashby & Waldron, 1999; Reber, 1989) where these accompanying contexts could become ingrained in thinking about the diagnostic category as the formal diagnostic criteria for that clinician. For example, if every patient with conduct disorder in a clinician’s caseload happened to have parents who were divorced, this family contextual factor may become implicitly incorporated into the clinician’s representation of a prototypical conduct disorder patient’s clinical presentation. When a new patient comes into the office whose parents are married, the clinician may be hesitant to provide a conduct disorder diagnosis because the child does not fit this implicitly learned element of the disorder’s representation. In this way, a clinician’s specific, idiosyncratic representation of a mental disorder may influence how that clinician interprets contextual information about patients. A similar process may occur explicitly, such as a clinician incorporating research on the evidence linking associated features of a mental disorder category (e.g., family history of the mental disorder evaluated) into their evaluations of patients for that disorder (see also Youngstrom & Frazier, 2013). Indeed, diagnostic systems used by mental health professionals make explicit the criteria directly relevant to diagnosing a condition (e.g., conduct disorder symptoms) but also document research-based factors that tend to co-occur with or pose risk for the development of the diagnosis (e.g., inconsistent parenting, deviant peer associations; APA, 2013). Presumably, this additional contextual information aids clinical decision making, even though it does not carry an officially defined role in the formal diagnostic process. In this way, the knowledge that mental health professionals have about the relations among symptoms, risk factors, and diagnostic decision making reflects a much more sophisticated knowledge base than the average layperson. In turn, it may be exactly this more sophisticated knowledge that allows context to influence the detection of mental health symptoms and making of diagnostic judgments. If so, since lay people lack this sophisticated knowledge from which to base judgments, lay judgments of mental health symptoms would not be influenced by context.

We propose an alternative hypothesis—specifically, that the influence of context demonstrated in clinicians may be reflective of more basic influences related to how people categorize objects in the world and interpret causality. In everyday categorization, how people see the features of objects and people can be greatly influenced by the context of the categorization task and the beliefs the reasoner brings to the task (e.g., Marsh & Ahn, 2009; Wisniewski & Medin, 1994). For example, an ambiguously motivated behavior will be reinterpreted as malevolent or benevolent depending on the reasoner’s personal stereotypes and beliefs about the person whose behavior is under evaluation (Gawronska, Geschke, & Banse, 2003). Overall, the same information can be interpreted differently depending on the beliefs of the reasoner and can therefore be used differently in the decision-making process.

In this way, laypeople may use contextual information to judge the presence of mental health symptoms if they believe contextual information is relevant to making such judgments. This phenomenon has been demonstrated with the use of background causal information in mental health reasoning. Symptoms of disease can be seen as more or less indicative of a disorder depending on causal relationships provided to explain those symptoms. For
example, a child demonstrating problematic behavior will be less likely to be given a mental disorder diagnosis by laypeople if that behavior is linked to a cause external to a child (e.g., poor social environment) than if that behavior is linked to a cause internal to a child (e.g., disordered thinking; Wakefield, Kirk, Pottick, Hsieh, & Tian, 2006; for similar results in mental health clinicians, see Hsieh & Kirk, 2003; Wakefield, Pottick, & Kirk, 2002). Likewise, individual symptoms of disorder (e.g., being cruel to dogs) will be labeled as less “abnormal” if they are given plausible causes (e.g., attacked by a dog as a child; Ahn, Novick, & Kim, 2003), with the perceived need for treating these symptoms decreasing if the cause is external to the person displaying the symptoms (Kim & LoSavio, 2009). Taken together, these previous findings suggest that elaborate clinical knowledge does not need to be possessed by a judge in order for their judgments to be influenced by surrounding contextual information in the interpretation of mental health symptoms. It becomes an empirical question to determine specifically whether context influences lay judgments of mental health concerns.

The following two experiments explored if laypeople’s judgments of the presence of mental health concerns were influenced by the context in which diagnostic symptoms of childhood disorders present. Our interest was in how laypeople first detect mental health concerns. As such, we utilized the paradigm of De Los Reyes and Marsh (2011) that investigated the interpretation of a child’s individual mental disorder symptoms as they first appear when judges of such symptoms have limited other information about the child. In Experiment 1, we assessed whether laypeople used contextual information in making judgments about mental health symptoms when that contextual information described elements of the children’s home, school, and peer interaction contexts. In Experiment 2, we additionally introduced contextual information about the known causes of the symptoms of a mental disorder to investigate the influence of information about the causal mechanisms of the disorder. These studies explored how laypeople separated contextual from relevant information in an important real-world domain. As such, findings from these studies can help us better understand how laypeople process the symptoms of disorder they witness in loved ones or themselves.

**Experiment 1**

The goal of Experiment 1 was to determine whether laypeople were influenced by the surrounding contextual life information that accompanied mental health symptoms when making judgments about the likelihood of a mental disorder diagnosis in a child. If the presentation of childhood mental health concerns is inextricably linked to the context in which they present, then we would expect a given symptom to be seen as more or less of an indicator of disorder depending on the surrounding non-diagnostic features (De Los Reyes & Marsh, 2011). However, if such interpretations of individual mental health concerns originate from the elaborated knowledge professional clinicians gain with experience, then we would expect laypeople to be immune to the influences of context in this paradigm.

**Method**

**Participants.** Thirty-one undergraduates from a large, public Southwest university participated in exchange for credit in an introductory psychology course. Participants did not have knowledge of the content of the experiment when agreeing to participate.

**Materials and procedure.** The basic procedures and materials in this experiment were the same used in De Los Reyes and Marsh (2011) to test mental health clinicians’ use of contextual information in assessing conduct disorder, with additional information added to ensure that the lay participants were familiar with the diagnostic criteria for conduct disorder. Participants began the experiment by reading information about conduct disorder. Specifically, participants read a description of conduct disorder’s core features (e.g., “Children who have Conduct Disorder tend to repeatedly ignore the basic rights of others and break societal norms and rules”), a list of the 15 diagnostic symptoms of conduct disorder included in the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; DSM–IV–TR; APA, 2000; see Table 1), and information about the number of symptoms required for a child to be diagnosed with the condition. Next, participants read about the basic task they were going to complete in the experiment. Participants were told they would read about hypothetical youths who may possess some of the conduct disorder symptoms they read. We described the hypothetical youths as being randomly selected from children attending the same middle school who were failing at least one class. This description equates the achievement and demographic backgrounds of the youths described in the vignettes. Furthermore, we told the participants that everything they were going to read was either currently true of the child or occurred in the last 6 months, establishing that the children described in the vignettes could potentially evidence the type of functional impairments required for a diagnosis of conduct disorder (see APA, 2000). We told participants each description consisted of four characteristics collected by guidance counselors through brief interviews that included details about the youth’s school, family, and social life. For each youth, we told participants that they would answer the question, “How likely would a youth with the given life factors be found to have conduct disorder if a full clinical evaluation was given?” by providing a rating on a

<table>
<thead>
<tr>
<th>Diagnostic symptom</th>
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<tbody>
<tr>
<td>often bullies threatens or intimidates others</td>
</tr>
<tr>
<td>often initiates physical fights</td>
</tr>
<tr>
<td>has used a weapon that can cause serious physical harm to others</td>
</tr>
<tr>
<td>has been physically cruel to people</td>
</tr>
<tr>
<td>has been physically cruel to animals</td>
</tr>
<tr>
<td>has stolen while confronting a victim</td>
</tr>
<tr>
<td>has forced someone into sexual activity</td>
</tr>
<tr>
<td>has deliberately engaged in fire setting with the intention of causing serious damage</td>
</tr>
<tr>
<td>has deliberately destroyed others’ property (other than fire setting)</td>
</tr>
<tr>
<td>has broken into someone else’s house building or car</td>
</tr>
<tr>
<td>often lies to obtain goods or favors or to avoid obligations</td>
</tr>
<tr>
<td>has stolen items of nontrivial value without confronting a victim</td>
</tr>
<tr>
<td>often stays out at night against his parents’ wishes and has been doing so since elementary school</td>
</tr>
<tr>
<td>has run away from home overnight multiple times</td>
</tr>
<tr>
<td>is often truant from school and has been doing so since elementary school</td>
</tr>
</tbody>
</table>
scale ranging from 0 (not very likely) to 100 (very likely). Finally, we told participants we were interested in best guesses as opposed to statistically accurate estimates, that anywhere between none and all of the youths could be diagnosed with conduct disorder, and to feel free to use all possible scores within the scale.

After this introduction, participants entered the main experimental phase where they read 30 vignettes each describing a new hypothetical youth. A vignette first presented one sentence describing the child’s family life, then one sentence describing the child’s peer relations, and then one sentence describing the child’s school environment. Following these three contextual sentences, a sentence describing one diagnostic symptom of conduct disorder was presented. To make it clear to participants that they were reading four pieces of information about the child that addressed different areas of the child’s life, we presented the information as a bulleted list as seen in Table 2. We took the contextual factors from materials used in De Los Reyes and Marsh (2011). These materials were created such that a set of factors did not represent actual diagnostic symptoms of any mental disorder, but were ratherjust factors that would be either associated with problematic behavior in children (consistent context [CC]) or not (inconsistent context [IC]). The contextual factors were equated in the type of information presented about the youth, while manipulating whether the information described problematic behavior (see Table 2).

The presentation of vignettes was split into two blocks. In one block, participants read eight vignettes that presented a CC description and seven vignettes that presented an IC description. In a second block, participants read seven CC vignettes and eight IC vignettes. Importantly, in each block of 15 vignettes, each diagnostic symptom was presented once. Further, each diagnostic symptom was presented within a CC vignette in one block and an IC vignette in the other block. Overall, this meant that participants made a rating for vignettes containing each of the 15 diagnostic symptoms, either in a CC or IC context, before rating the symptom again in the opposite context. We randomized the order of vignettes within block and the presentation order of the blocks for each participant.

After the vignette phase, participants completed ratings for each of the diagnostic symptoms of conduct disorder outside of any context. The baseline rating asked participants to judge the likelihood that a child would be diagnosed with conduct disorder if a full evaluation were given if the only fact known about the child was one of the diagnostic symptoms of conduct disorder. This rating was identical in wording to the likelihood rating from the vignette task and used the same scale. Therefore, comparing CC and IC ratings to baseline ratings allows for an investigation of how context influences ratings above and beyond the symptom alone. We also asked participants to make four other estimates whose content domain falls outside the scope of the current article and are therefore not discussed further. We randomized the order of these five sets of ratings, as well as the order of symptoms within each rating type.

We administered the experiment through the Qualtrics Research Suite software (Qualtrics Labs, 2009) on iMac computers in the lab of the first author. All participants completed the experiment at their own pace with the option to take breaks as necessary, taking on average 35 min to finish.

Results

Influence of context. We first analyzed if context influenced diagnostic likelihood judgments of conduct disorder by comparing IC ratings to CC ratings. For each participant, we calculated the mean diagnostic likelihood rating across the 15 IC vignettes and across the 15 CC vignettes. Lay participants provided higher diagnostic likelihood ratings for the CC vignettes ($M = 62.46, SD = 17.85$) than the IC vignettes ($M = 25.89, SD = 17.86$). A one-way analysis of variance (ANOVA) with context (CC vs. IC) as a within-subjects factor found a main effect of context, $F(1, 30) = 114.44, p < .001, \eta^2_p = .79$. In other words, lay judgments of the likelihood of disorder significantly changed as a function of the contextual information presented.

We next explored how these ratings in the two contextual conditions differed from ratings for symptoms when no context was provided (i.e., ratings in the baseline post-test). We conducted a repeated-measures ANOVA over mean diagnostic likelihood ratings with context presence (CC, IC, baseline) as the factor. We found a significant main effect, $F(2, 60) = 65.95, p < .001, \eta^2_p = .69$. Follow-up t-tests showed that mean IC ratings were significantly lower than baseline ratings ($M = 57.21, SD = 17.21$), $t(30) = 7.48, p < .001, d = 1.34$. Mean CC ratings were higher than baseline ratings, $t(30) = 2.08, p = .046, d = 0.37$. Using Cohen’s (1988) effect size conventions, this was a small effect relative to the large effect observed when comparing the IC and baseline ratings. These analyses suggest that presenting a diagnos-

<table>
<thead>
<tr>
<th>Type of factor</th>
<th>Consistent context</th>
<th>Inconsistent context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>• His father recently lost his job after getting into an argument with his boss.</td>
<td>• His father recently lost his job after his company eliminated some employment positions due to budget cuts.</td>
</tr>
<tr>
<td>Peer relations</td>
<td>• One of his best friends moved back to his school after serving a 1-year sentence in juvenile hall.</td>
<td>• One of his best friends moved back to his school after spending a year in the hospital undergoing chemotherapy.</td>
</tr>
<tr>
<td>School environment</td>
<td>• When he is not studying, he spends time on the computer chatting with older strangers that he has met in person without his parents knowing.</td>
<td>• When he is not studying, he spends time on the computer chatting with friends he knows from other schools that his parents have met before.</td>
</tr>
</tbody>
</table>

Note. Underlining denotes the basic information that is identical between the two versions. The underlining was not included in the actual experimental materials. Each description in the experiments included a final bullet describing a diagnostic symptom of disorder. This table was adapted from De Los Reyes and Marsh (2011).
tic symptom alongside inconsistent contextual information resulted in a dramatic lowering of diagnostic likelihood judgments, while presenting the same symptom alongside consistent contextual information resulted in a smaller scale increase in diagnostic likelihood judgments.

**Context effects across symptoms.** We next investigated whether symptoms varied in the extent to which they were influenced by context. That is, are certain symptoms impervious to the influences of contextual information whereas other symptoms are not? For each diagnostic symptom, we calculated a measure of how much more likely a diagnosis was to be given for each symptom when a consistent context was present than when an inconsistent context was present by subtracting the rating for a given symptom when presented in an IC vignette from the rating for that same symptom when presented in a CC vignette. We refer to these difference scores as context effect scores. A large, positive context effect score would indicate that a diagnosis was much more likely for that symptom when presented in the consistent context vignette than the inconsistent context vignette. A score close to zero would indicate that context did not have much of an influence on diagnostic likelihood judgments for that symptom.

We calculated context effect scores for each of the 15 symptoms for each participant. One participant did not provide a rating for one CC vignette, meaning for one subject we were only able to calculate 14 context effect scores.

We examined whether the 15 symptoms were influenced by context to a similar extent as indicated by the symptoms having very similar context effect scores. After calculating the context effect scores for each participant, we rank ordered them from largest to smallest, such that the symptom with the largest, positive context effect score was given a rank of 1, second largest a rank of 2, on through the ranks. This rank ordering allowed us to examine the within-participant variability in context effect scores across the 15 symptoms. Again, if context influenced all symptoms similarly, then we would expect the context effect score for Rank 1 and Rank 15 to be very similar. However, if some symptoms were greatly affected by context and some were not, then we would expect there to be large variability between Rank 1 and Rank 15’s context effect score. To examine this question, we averaged the context effect scores for the 15 ranks across all subjects and submitted the average context effect score. To examine this question, we averaged the context effect scores for the 15 ranks across all subjects and submitted the average context effect score to an ANOVA with rank as a within-subjects factor. We found a significant main effect of rank, $F(14, 60) = 231.04, p < .001$, $\eta^2_p = .89$, indicating that context effect scores differed across rank grouping. Planned $t$-tests comparing mean ratings in the three rank groups found the mean context effect score for the top triad was significantly higher than the middle triad, $t(30) = 13.89, p < .001, d = 2.46$. The same was true when comparing the middle triad to the bottom triad, $t(30) = 12.32, p < .001, d = 1.77$.

Our next step in analyzing the context effect scores was to assess whether participants agreed on which symptoms were more influenced by context. We ran a Kendall’s Coefficient of Concordance test (i.e., Kendall’s $\omega$ test) on the context effect scores for each symptom to assess the amount of agreement among participants for how much the symptoms were affected by context. Kendall’s $\omega$ can range from 0 to 1, with a value of 1 indicating perfect agreement and a value of 0 indicating no agreement (Field, 2009). Agreement was significant but extremely low ($\omega = .089$, $df = 14$, $p = .001$). Low agreement may reflect that while participants may not agree on specifically which symptom is the most influenced by context, they could still agree that a given symptom is one of the most influenced by context. To test this, we examined our rank ordering of each participant’s context effect scores. As a reminder, a symptom that was in a rank of 1 showed the largest positive context effect score for that individual participant. For each symptom, we tallied how many participants ranked that symptom in one of the five top ranks, one of the middle five ranks, or in one of the bottom five ranks. This tally gives us a sense of how often across participants a given symptom was highly, moderately, or only slightly influenced by context. We conducted chi-square goodness-of-fit tests on each triad to determine whether any symptom appeared more often in the top, middle, or bottom (for similar analyses, see De Los Reyes & Marsh, 2011). No single symptom appeared more often in the top third, $\chi^2(14, N = 177) = 18.34, p = .19$; middle third, $\chi^2(14, N = 150) = 8.00, p = .89$; or the bottom third, $\chi^2(14, N = 137) = 18.15, p = .20$. Taking the Concordance and chi-square analyses together, we did not find evidence there were individual symptoms that subjects agreed were the most or the least likely to be influenced by contextual information.
Discussion

The context in which mental health symptoms present influenced lay participants’ judgments of disorder. Specifically, we observed significantly lower diagnostic likelihood estimates when a single symptom was presented in a context that implied a normal, non-problematic home, school, and peer environment than when that same symptom was presented in an environment that did not include additional diagnostic symptoms of conduct disorder but was seen as a normal environment. How context exerted an influence on laypeople’s judgments of conduct disorder symptoms varied by symptom. However, there was very low agreement among participants as to which symptoms were the most or least affected by context. That laypeople are influenced by the context in which mental health symptoms display suggests that this influence reflects a basic phenomenon of processing and categorizing information as opposed to a product of specialized clinical experience.

Overall, our findings with laypeople follow the same trends as found in professional mental health clinicians (De Los Reyes & Marsh, 2011). As in clinicians, laypeople were influenced by contextual life information in that they provided lower ratings for IC vignettes than CC vignettes. Interestingly, laypeople did differ from clinicians in how they rated the CC vignettes compared to baseline. Clinicians in De Los Reyes and Marsh (2011) reported lower IC ratings compared to baseline, but their CC ratings did not differ from baseline. In our current study, laypeople reported lower IC ratings compared to baseline, but also higher CC ratings than baseline. It is an interesting avenue for future research to investigate why laypeople and professionals differ in the way they perceive a consistent context’s influence on the likelihood of disorder. Importantly though, laypeople are still showing the same difference between CC and IC ratings that suggests individual symptoms of disorder are interpreted differently depending on context. Consequently, the findings from this study indicate that laypeople, like professional clinicians, apply contextual information to their judgments of conduct disorder symptoms, and yet also disagree as to the specific symptoms to which to apply this contextual information.

As described previously, contextual information cannot only take the form of additional information about patients’ life circumstances, but also information about the proposed causes of patients’ behavior. Beliefs about the causal origin of mental health symptoms have important consequences for issues related to mental health ranging from diagnosis (Ahn et al., 2005; Kim & Ahn, 2002) to choosing an appropriate treatment (Ahn, Proctor, & Flanagan, 2009; Kim & LoSavio, 2009; Yopchick & Kim, 2009). At the level of individual symptoms, information about the causal origin of a symptom can be used to reinterpret the abnormality of the symptom, which, in turn, can influence the viewed appropriateness of a mental disorder diagnosis (Ahn et al., 2003; Wakefield et al., 2006). In short, causal information can have important influences on how diagnostic symptoms are perceived. Therefore, it is important to understand how this type of contextual information may interact with the type of life context information we have investigated in Experiment 1. Indeed, in Experiment 1, participants received no explicit information as to whether the described contexts played a causal role in the development and expression of the mental health concerns alongside which they were presented. It is possible that providing participants with an explicit causal origin of a mental health concern might serve to moderate the influence of contextual information. For example, knowing the cause of a disorder is biological in nature should make a seemingly normal or abnormal life context less relevant in detecting symptoms of a disorder. That is, if disorder symptoms are caused by the expression of a genetic factor, then it should not matter if that child is in a problematic or non-problematic home environment. In Experiment 2, we explored how causal information of different types interacted with life context information to change laypeople’s impressions of mental health disorder symptoms.

Experiment 2

The goal of Experiment 2 was to determine how causal explanations for a disorder interact with the use of other contextual information in interpreting mental health symptoms. People willingly endorse causal explanations for mental disorder symptoms in the form of internal psychological processes (e.g., thought patterns), internal biological processes (e.g., genetic factors), as well as external environmental processes (e.g., traumatic events; Ahn et al., 2009). The latter two types of causes are of particular interest in thinking about how causal information may interact with contextual life information. Believing a mental disorder is caused by environmental factors highlights the importance of the context in which a symptom may display because it is exactly this context that could be producing the disorder. Biological causes serve as an interesting counterpoint to environmental causes because they should suggest an immunity to context; that is, a biological origin for a disorder suggests that the context in which the child is living may be relatively less important. As such, we chose to compare the influence of contextual information when a disorder is described as having a biological versus an environmental causal origin as opposed to when no such causal origin information is included. To accommodate a disorder that was known to have plausible biological and environmental causal factors, we examined these issues using symptoms of attention-deficit/hyperactivity disorder (ADHD; APA, 2013)—a condition typified by a child’s marked (i.e., atypical to a child’s developmental expectations) and persistent (i.e., across home and school settings) difficulties with maintaining attention, impulsivity, and hyperactive behavior. Research supports a complex interplay of environmental and biological pathways to the development and maintenance of ADHD (for a review, see Frick & Nigg, 2012). Further, laypeople form different impressions of the causes of patients’ behaviors, depending on the kinds of treatment modalities being applied to address ADHD concerns (e.g., medication vs. behavioral vs. a combined treatment approach; Johnston & Leung, 2001). In turn, beliefs about the causal origin of ADHD concerns might impact a layperson’s decision to seek out specific courses of treatment for ADHD (e.g., Johnston, Seipp, Hommersen, Hoza, & Fine, 2005). For instance, a parent who believes that biological factors account for her child’s ADHD concerns may seek medication treatment for her child’s concerns, whereas a parent who believes that his parenting style or the child’s school environment exacerbates his child’s ADHD concerns may seek psychosocial treatment services. As such, examining laypeople’s judgments of ADHD allows for an interesting investigation of how causal contextual information interacts with the life contextual information we examined in Experiment 1.
We propose three possibilities for how causal information may interact with contextual information in the interpretation of disorder symptoms. First, as described above, the influence of causal information may depend on the type of cause that is described. Biological cause information (e.g., genetic or neurological factors) may negate the use of context: If a disorder is caused by a genetic factor, then the environment that child is in may be less important when detecting symptoms of disease. In this case, we would expect little difference between ratings in the IC and CC conditions and, therefore, small context effect scores. However, if a disease is attributed to environmental causes (e.g., parental behaviors or socio-economic factors), then the importance of contextual information related to the disorder may be heightened. In this case, we would expect large differences between the IC and CC conditions. As such, we would expect context to have the smallest effect in the presence of biological cause information, followed by larger scores when no cause information is provided, with the largest scores when environmental cause information is provided.

Second, providing causal origin information for a disorder may result in an effect similar to Ahn et al. (2003), where people perceive all behaviors to be more normal than if they are provided with no causal information. Such an increase in normality should result in a decrease in diagnostic likelihood ratings across the IC and CC vignettes. This overall decrease in diagnostic likelihood judgments could result in smaller IC and CC ratings across causal conditions compared to when no causal information is provided.

A third possibility is that adding information about the cause of a disorder may serve to justify the use of context. Being informed about the causal basis of a disorder might make lay participants feel more knowledgeable about the disorder in general. Feeling more informed could in turn lead participants to use their own beliefs and theories about mental health concerns more readily (e.g., Corneille, Leyens, Yzerbyt, & Walther, 1999). If this is the case, then participants may actually use context more when causal information is provided, resulting in higher CC ratings, lower IC ratings, and an overall increase in context effect scores. In the following experiment, we examined these three possibilities.

Method

Participants. Undergraduate students at a small, private Northeast university (N = 103) participated for course credit. Participants did not have any knowledge of the content of the experiment when agreeing to participate in the experiment.

Materials and procedure. We used the same procedure as Experiment 1 with the following exceptions. All materials described the disorder of ADHD instead of conduct disorder. After the beginning instructions screen that familiarized participants with ADHD and its 18 diagnostic symptoms (see Table 3), participants read a screen that presented one of the three causal origin manipulations. Participants in the biological cause condition (n = 34) read a screen that contained a short passage (i.e., four sentences) that described ADHD as resulting from biological abnormalities, including that children diagnosed with ADHD have lower brain metabolism in attention control areas of the brain than children without, that ADHD may result from genetic factors, and that ADHD tends to run in families. This description ended with instructions of how to rate vignettes they would read on the following screens. Participants in the environmental cause condition (n = 34) read a similar passage, except with information suggesting ADHD results from environmental risks. This information included evidence that children with ADHD had more prenatal tobacco smoke exposure, that ADHD can stem from family factors, and children who have ADHD tend to have parents who exhibit poorer parenting behaviors. Finally, participants in the no cause condition (n = 35) did not read any cause information and instead just read the instructions about how to complete the ratings.

Participants then rated 36 vignettes instead of 30 as in Experiment 1, 18 CC vignettes and 18 IC vignettes with each diagnostic symptom appearing once in each type of context. The contextual factors were the same as in Experiment 1, plus three additional pairs of context descriptions taken from rounds of pretesting done for De Los Reyes and Marsh (2011).1 The ratings and blocking of vignette order was the same as in Experiment 1.

After rating the vignettes, participants then completed the same baseline and additional ratings for diagnostic symptoms alone of ADHD as they did for conduct disorder in Experiment 1. Finally, participants completed a series of post-test questions to assess their experience with and views about ADHD. We asked participants to rate to what extent they believed ADHD was caused by biological factors, and then separately by environmental factors, on a scale ranging from 0 (not at all {biologically/environmentally} caused) to 100 (completely {biologically/environmentally} caused) with the proper cause term inserted for each question. We then asked participants if they knew anyone diagnosed with ADHD, if they

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1 These materials were created to be either highly or lowly associated with conduct disorder, as judged by pretest participants with clinical training. We ran a separate pretest with 16 new lay participants to check that the materials were also associated with problematic behavior more generally. All of the materials were rated as highly indicative of problematic behavior in their CC form but not in their IC form.
had a close family member or friend diagnosed with ADHD, and if they themselves were diagnosed. We embedded these questions in a series of filler questions unrelated to our exploration here including the extent to which they thought ADHD was over diagnosed, whether they believed ADHD was a real disorder, appropriateness of medication in treatment, appropriateness of therapy in treatment, and the context in which they thought ADHD symptoms would be most prevalent. As in Experiment 1, the experiment was conducted through the Qualtrics Survey software and was self-paced.

**Results**

In the following, we first examined the influence of context in each of our causal context manipulations. We then compared the relative influence of context across causal manipulations. We then followed up with explorations to determine if participants agree on the influence of context across symptoms. Finally, we examined our extra measures related to experience with ADHD to see if those beliefs moderate our findings.

**Influence of context.** As in Experiment 1, we first analyzed whether context influenced diagnostic likelihood ratings as in previous work within our new test disorder of ADHD. For each participant, we calculated the mean diagnostic likelihood rating across the 18 IC vignettes and across the 18 CC vignettes. We submitted these averages to a mixed ANOVA with context (CC vs. IC) as a within-subjects factor and condition (no cause, biological cause, environmental cause) as a between-subjects factor. The main effect of context was significant, \( F(1, 100) = 9.07, p < .001, \eta^2_p = .04 \), but the main effect of condition was not \( (p = .13) \). The interaction was significant, \( F(2, 100) = 3.39, p = .038, \eta^2_p = .063 \). Simple effect analyses showed that in the no cause condition CC ratings \( (M = 35.10, SD = 18.62) \) were significantly higher than IC ratings \( (M = 27.80, SD = 16.63) \), \( F(1, 100) = 9.30, p = .003, \eta^2_p = .085 \). This finding verified that context influenced the interpretation of ADHD symptoms in the absence of any causal origin information and serves as a replication of Experiment 1 in a new disorder. We observed the same effect in the environmental cause condition \( (M_{CC} = 45.15, SD = 18.22; M_{IC} = 30.29, SD = 14.69) \), \( F(1, 100) = 37.39, p < .001, \eta^2_p = .27 \), and biological cause condition \( (M_{CC} = 38.11, SD = 21.10; M_{IC} = 23.03, SD = 14.35) \), \( F(1, 100) = 38.55, p < .001, \eta^2_p = .28 \). These results demonstrated that context did influence ratings for ADHD alone (no cause condition) and in the presence of a causal factor (environmental and biological conditions).

As can be observed from the means reported earlier, we did not find evidence for a lowering of diagnostic likelihood judgments when a causal origin was provided. Ratings in the CC vignettes were higher in both cause conditions compared to the no cause condition. In fact, a post hoc Sidak comparison found that ratings in the environmental cause condition were marginally higher than in the no cause condition \( (p = .097) \). Likewise, mean IC ratings were higher in the environmental cause than the no cause condition. The mean IC rating in the biological cause condition was lower than the no cause condition, but not significantly \( (p = .48) \).

We next compared ratings for diagnostic symptoms in the IC and CC conditions to baseline ratings. We submitted diagnostic likelihood ratings to a mixed ANOVA with condition as a between-subjects factor and context presence (CC, IC, baseline) as a within-subjects factor. The main effect of context presence was significant, \( F(2, 200) = 86.32, p < .001, \eta^2_p = .46 \). The main effect of condition was marginally significant \( (p = .077) \), and the interaction was not significant \( (p = .13) \). To explore the direction of the difference on context ratings, we collapsed across condition and compared IC, CC, and baseline ratings. As in Experiment 1, baseline ratings where no contextual information was provided \( (M = 49.81, SD = 19.46) \) were significantly higher than IC ratings \( (M = 27.05, SD = 15.42) \), \( t(102) = 12.32, p < .001, d = 1.21 \). Unlike Experiment 1, baseline ratings were also significantly higher than CC ratings \( (M = 39.41, SD = 19.62) \), \( t(102) = 5.37, p < .001, d = 0.94 \).

Focusing specifically on judgments made for the CC and IC vignettes, we explored the magnitude of the context effect across conditions to determine whether the addition of causal origin information influenced how context was used to interpret symptoms. For each diagnostic symptom, we calculated a mean context effect score as in Experiment 1 (CC rating minus IC rating). We calculated average difference scores for each participant and submitted them to a one-way ANOVA with condition as a between-subjects factor. We found a main effect of condition, \( F(2, 100) = 3.40, p = .037, \eta^2_p = .064 \), suggesting that the mean difference between ratings for CC and IC vignettes did differ across the causal manipulation. We used follow-up planned contrasts to see if the context effect differed in magnitude by type of causal origin description (see Figure 2). There was no significant difference between the mean context effect scores for the biological \( (M = 15.09, SD = 13.35) \) and environmental \( (M = 14.90, SD = 16.83) \) causal conditions \( (p = .96) \). We then conducted a contrast comparing the two causal condition scores collapsed together against the no cause condition \( (M = 7.30, SD = 11.97) \). A significantly larger context effect score was found in the causal conditions than the no cause condition, \( t(100) = 2.61, p = .011 \). In short, adding information about the causal origin of a disorder increased the influence of context, regardless of what type of causal origin information was added.

One possible difficulty in interpreting the results from the causal conditions is that participants could have been assigned to a causal condition that conflicted with their personal beliefs about the cause.

![Figure 2](image-url)
of ADHD. For example, a participant may have been assigned to the environmental cause condition but personally believes that ADHD is caused by biological factors. To account for this, we examined whether the magnitude of the context effect scores differed across the biological and environmental cause conditions when ratings on the post-test assessment of causal beliefs were used as covariates (see Table 4 for mean ratings on these measures). Specifically, we ran a one-way ANCOVA over context effect scores with condition (biological cause vs. environmental cause) as a between-subjects factor and with biological and environmental cause post-test ratings as two separate covariates. There was still no main effect of the magnitude of the context effect when controlling for participants’ causal beliefs (p = .79). The covariates were not significant (p > .07). That is, participants assigned to a condition that matched their beliefs measured in the post-test (e.g., biological cause condition participants who rated biological causes higher or environmental cause condition participants who rated environmental causes higher) showed the same magnitude of context effects (n = 34; M = 13.47, SD = 12.30) as those whose assignment did not match their beliefs (e.g., environmental cause condition participants who rated biological causes higher or biological cause condition participants who rated environmental causes higher; n = 28; M = 13.87, SD = 14.43; p = .90).

Context effects across symptoms. As in Experiment 1, we analyzed whether participants applied context evenly across symptoms. To do this, we used the same rank order analysis as in Experiment 1. For each participant, we calculated that participant’s context effect score for each symptom. We then rank ordered these context effect scores from largest to smallest. This allowed us to conduct within-participant examinations of how much the symptom most influenced by context (i.e., the symptom with the largest context effect score and highest rank) differed from the symptom with the lowest context effect score. To statistically test whether context effect scores differed across symptoms, we submitted the ranked scores to an ANOVA with rank as a within-subjects factor and condition as a between-subjects factor. There was a main effect of rank, F(17, 1683) = 311.8, p < .001, η² = .76. The main effect of condition was also significant, F(34, 1683) = 2.46, p < .001, η² = .047. Follow-up contrasts on the main effect of rank found that context effect scores fit a significant linear relation across ranks, F(1, 99) = 444.6, p < .001, η² = .82, suggesting that context effect scores linearly decreased down the ranks. In other words, as in Experiment 1, there was significant variability across symptoms in the extent to which they were influenced by context.

To simplify the presentation of these results, we collapsed across the top 6, middle 6, and bottom 6 ranks in each condition to create mean top, middle, and bottom triads. We then conducted a mixed ANOVA with triad (top, middle, and bottom) as a within-subjects factor and condition as a between-subjects factor. We found a significant main effect of triad, F(2, 200) = 404.27, p < .001, η² = .80. We also found a significant main effect of condition, F(2, 100) = 3.21, p = .045, η² = .06, and a significant interaction, F(4, 200) = 3.01, p = .019, η² = .057. To explore the effect of triad, we conducted planned t-tests comparing the three ranks in each condition. We found that the mean context effect score in the top triad was significantly larger than the middle triad (no cause: M_top = 28.81, SD = 15.55; M_middle = 7.10, SD = 12.06, t(34) = 11.10, p < .001, d = 1.88; environmental: M_top = 41.15, SD = 22.76; M_middle = 17.62, SD = 20.88, t(33) = 11.83, p < .001, d = 2.03; biological: M_top = 35.98, SD = 21.29; M_middle = 13.50, SD = 14.33, t(33) = 13.10, p < .001, d = 2.25). The mean context effect score for the middle triad was in turn significantly larger than the mean rating for the bottom triad (no cause: M_bottom = –12.17, SD = 17.17, t(34) = 9.68, p < .001, d = 1.64; environmental: M_bottom = –10.34, SD = 17.50, t(33) = 10.07, p < .001, d = 1.73; biological: M_bottom = –8.49, SD = 10.63, p < .001, d = 1.82). We next analyzed whether participants agreed on which symptoms were the most (or least) influenced by context. We calculated Kendall’s ω separately for each condition. We observed non-significant agreement in the no cause condition (ω = .038, df = 17, p = .16). There was significant, but extremely low, agreement in each of the causal conditions (environmental: ω = .074, df = 17, p = .001; Biological: ω = .076, df = 17, p < .001). We

### Table 4

<table>
<thead>
<tr>
<th>Experience level with ADHD</th>
<th>Total</th>
<th>No cause</th>
<th>Environmental cause</th>
<th>Biological cause</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>None</td>
<td>15</td>
<td>14.6</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>Has acquaintances with ADHD</td>
<td>18</td>
<td>17.5</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td>Knows close others with ADHD</td>
<td>60</td>
<td>58.3</td>
<td>20</td>
<td>57.1</td>
</tr>
<tr>
<td>Self has diagnosis</td>
<td>8</td>
<td>7.8</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Refused to report</td>
<td>2</td>
<td>1.9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Causal factor endorsement</th>
<th>M (SD)</th>
<th>M (SD)</th>
<th>M (SD)</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>42.1 (25.9)</td>
<td>39.9 (25.4)</td>
<td>47.2 (24.1)</td>
<td>39.2 (28.1)</td>
</tr>
<tr>
<td>Biological</td>
<td>59.6 (23.8)</td>
<td>61.2 (25.6)</td>
<td>55.0 (20.3)</td>
<td>62.6 (25.0)</td>
</tr>
</tbody>
</table>

*To what extent do you think ADHD is caused by environmental/biological factors? Rated on a scale ranging from 0 (not at all caused) to 100 (completely caused).*
followed the same procedure as in Experiment 1 to further investigate these agreement analyses to determine whether participants agreed on a set of symptoms that was the most influenced by context. For each individual symptom, we tallied for how many participants the context effect score of that symptom fell in one of their top six ranks, one of the middle six ranks, or in one of the bottom six ranks. As in Experiment 1, this allowed us to examine how often a given symptom was one of the most influenced by context, one of the least influenced, or somewhere in between. We conducted chi-square goodness-of-fit tests on these counts to determine whether any symptom appeared more often in the top, middle, or bottom six. For the no cause condition, no single symptom appeared more often in the top third, $\chi^2(17, N = 261) = 10.24, p = .89$; middle third, $\chi^2(17, N = 208) = 11.46, p = .83$; or the bottom third, $\chi^2(17, N = 161) = 12.40, p = .78$. We observed the same pattern of findings for the environmental condition—top, $\chi^2(17, N = 261) = 21.69, p = .20$; middle, $\chi^2(17, N = 172) = 7.58, p = .98$; bottom, $\chi^2(17, N = 178) = 21.21, p = .21$—and the biological condition—top, $\chi^2(17, N = 237) = 16.14, p = .51$; middle, $\chi^2(17, N = 214) = 5.70, p = .99$; bottom, $\chi^2(17, N = 161) = 26.04, p = .074$.

**Influence of experience.** Using materials related to a familiar disorder like ADHD introduces the possibility of exploring how personal experience with this disorder may moderate the effects of context and causal information. We did not systematically randomize participants with different levels of experience with ADHD across our causal origin manipulation, making it difficult to interpret any results related to experience at the level of causal condition. As such, for the following analysis we collapsed across the causal origin manipulation. We examined context effect scores to determine whether people with more experience with ADHD used context more or less. We divided participants into four categories: people who reported no previous experience with anyone who had ADHD (none group), people who reported knowing someone with ADHD but not a close family member or friend (acquaintance group), people who reported a close family member or friend had ADHD (close other group), or people who reported they had been diagnosed with ADHD (self group; see Table 4 for respondent numbers across conditions). An ANOVA conducted on the context effect scores with experience as a between-subjects factor found a significant effect of experience, $F(3, 97) = 4.05, p = .009, \eta^2_p = .11$. We utilized follow-up post hoc comparisons with Sidak corrections to investigate how the groups differed. The self group ($M = 27.23, SD = 20.75$) had significantly larger context effect scores than the none ($M = 8.04, SD = 15.33; p = .010$), acquaintance ($M = 9.14, SD = 10.30; p = .014$), or close other ($M = 11.63, SD = 12.91; p = .018$) groups. No other groups’ comparisons were significant ($ps > .9$).

**Discussion**

As shown in Experiment 1 for conduct disorder, we found in Experiment 2 that the surrounding non-diagnostic life information that a child is experiencing influences laypeople’s judgments of children’s ADHD symptoms in idiosyncratic ways. This basic finding extends the previous findings on conduct disorder to a new mental health condition. Importantly, providing participants with more information about the disorder in the form of causal origin information did not reduce the influence of context. Instead, context effect difference scores were larger in the causal conditions. This finding held regardless of which causal condition we examined.

Why would causal information uniformly amplify the influence of context on mental health symptoms? Stereotype research has shown that adding some type of individuating information to a reasoning situation can allow people to use a stereotype they hold about a person that they would otherwise not normally use (e.g., Corneille et al., 1999). In this way, adding information to a situation can give people license to use a shortcut in reasoning about the situation. In our paradigm, providing a description of the causal background of ADHD may have allowed participants to feel more knowledgeable about the disorder. This in turn could have made participants more comfortable in their use of context across causal conditions, increasing context effect difference scores as we found. This knowledge explanation could also account for why participants who reported being diagnosed with ADHD showed stronger context effects; they may feel more informed about the disorder from their experience of it. Whatever the exact reason, causal information did not reduce the use of contextual information in interpreting individual mental disorder symptoms, but rather increased it.

One interesting difference between Experiment 1 and 2 is the comparison of the CC and IC ratings to baseline ratings. In this experiment, reading any contextual information provided for lower ratings than compared to baseline, whereas in Experiment 1, CC ratings were higher than baseline. It is not immediately clear why a consistent context did not increase ratings compared to baseline in ADHD as it did in conduct disorder. Overall, likelihood ratings were lower in Experiment 2 than in Experiment 1. This suggests that a diagnosis of ADHD may seem less likely when only one symptom of the disorder is present than when one symptom of conduct disorder is present, regardless of context. Why this would translate into baseline ratings that are higher than CC ratings is an issue for future research. Importantly, symptoms of disorder rarely display in isolation, suggesting that ratings for CC and IC vignettes may be more indicative of how single symptoms of disorder are interpreted. In this way, the influence of context we demonstrated in Experiment 1 is still evident in Experiment 2.

**General Discussion**

Every mental health symptom presents in the rich context of a person’s life. In the previous two experiments, we explored how laypeople make judgments about those symptoms given the context they present in. We found that, similar to mental health professionals (De Los Reyes & Marsh, 2011), laypeople used the context of a child’s life to make judgments about whether individual mental health symptoms are indicative of disorder. Namely, when a child living in an environment expected to be associated with positive outcomes shows one disorder symptom (e.g., physically cruel to animals), this child is significantly less likely to be labeled as having a mental disorder than when a child living in an environment expected to be associated with negative outcomes.

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2 **Conduct disorder requires three symptoms to meet criteria, whereas ADHD requires six (APA, 2000). Displaying one symptom of three may seem to be more indicative of disorder than displaying one of six because the former is a greater proportion of required symptom criteria.”**
engages in exactly the same behavior. The addition of causal information that could help deflect the use of other contextual information instead serves to amplify its use. Importantly, the magnitude of the effect of context varies across symptoms in reasoner-specific ways. As such, it is difficult to predict for a given person what symptoms of disease she may more or less discount given a child’s background.

Our exploration has documented that contextual information affects laypeople’s judgments of conduct disorder and ADHD. There is an element of appropriateness in using context in assessing the likelihood of mental health concerns. However, our findings indicate laypeople may use context to inform their judgments about mental health concerns in unexpected ways. For instance, both the current (DSM–5; APA, 2013) and immediately previous (DSM–IV–TR; APA, 2000) versions of the DSM stipulate that a diagnosis of conduct disorder is not appropriate if symptoms can be attributed to environmental factors (e.g., a child who gets into fights because he lives in a neighborhood where it is a necessary survival strategy). Heeding this DSM precaution should result in lower ratings when a symptom is presented in our consistent context because the symptom can be explained away by the problematic context. Our findings indicate the opposite effect occurs in laypeople’s judgments of conduct disorder and ADHD symptoms. Overall, our findings highlight the importance of understanding how idiosyncratic beliefs of lay reasoners influence interpretations of the signs of mental health concerns.

Limitations

The limitations of our study reveal directions for future research. First, we examined how contextual information affects laypeople’s diagnostic likelihood ratings. Believing a child is likely to have a mental disorder should be predictive of making an actual health care decision, such as a parent deciding to seek out mental health care for her child. However, our results did not illuminate how these judgments translate into action. For example, would a context that increases the likelihood of a diagnosis likewise increase the likelihood of a referral? This is an important avenue for future research. Furthermore, just because a diagnosis is warranted, as would be reflected in our likelihood judgments, does not mean that it is actually given by health care providers. For example, clinicians have been shown to provide a diagnosis that is in the best interest of the child as opposed to a diagnosis that is warranted by the DSM (Barnard-Brak, Stevens, Robinson, & Holt, 2013). It is an open question how such concerns about the interest of a child would interact with the context in which diagnostic symptoms are displayed, and further, how a layperson would be influenced by thinking of the best interests of a loved one.

Second, given our effects and their variability across laypeople, context effects might impact different health care decisions of some laypeople and not others. That is, referral for treatment may vary in idiosyncratic ways depending on an interaction of the symptom and the context within which the symptom presents. Future research should examine the extent to which such problematic contextual information influences laypeople’s identification of mental health care concerns in relation to treatment decisions.

Third, our participants were a group of naïve lay undergraduate participants who were not actively engaged in making diagnostic decisions for others, such as might be case with parents or teachers. Consequently, lay undergraduates who do not have to make an actual diagnostic decision may incorporate contextual information less than a teacher who is charged with helping students gain access to care. In prior work, clinicians, who are tasked to make diagnostic decisions, showed the same type of responding as laypeople in our task (De Los Reyes & Marsh, 2011). Thus, there is reason to believe parents and teachers may show similar trends. As such, we recommend future research examining how much more or less parents and teachers incorporate contextual information than our lay sample. Finally, we did not randomly assign participants with different ADHD experience levels to the conditions of Experiment 2. As such, any claims we can make about the influence of experience are exploratory. These issues merit further study given the high prevalence of childhood mental disorders in modern society.

Research and Theoretical Implications

Our findings have important implications for understanding how people make judgments about information in light of the context that surrounds that information. First, our results speak to how people perceive individual mental disorder symptoms in others, an issue that is especially important to understand when assessing mental health symptoms in children. Children generally cannot refer themselves to care and must rely on adult caregivers to help identify mental health concerns. Our findings indicate that laypeople reduce their likelihood ratings for children’s mental health concerns presenting alongside contextual information that is inconsistent with expressions of such concerns. What these findings suggest is that parents and teachers who see a child who seems to be succeeding in many important ways (e.g., has friends, comes from a good home) may turn a blind eye to important signals of mental health concerns. If the presence of a seemingly supportive context in a child’s life allows laypeople to explain away the presentation of mental health symptoms, this could create a true barrier to children receiving the mental health care they need. Importantly, we found that contextual influences on laypeople’s judgments about mental health concerns remain, even when laypeople are provided with an overall explanation about the root causes of the concerns about which they will provide judgments (e.g., biological or environmental causes for ADHD). In light of our findings, we encourage future research to examine how increasing laypeople’s literacy on the risk and protective factors for childhood mental health concerns may influence laypeople’s abilities to refer children who warrant mental health care. This kind of research may inform the development of techniques for reducing known disparities in access to mental health care (e.g., Wang et al., 2005).

While our research was limited to the influence of context of mental health, our results also have important implications for how context influences more general decision making. It appears that contextual information affects laypeople’s judgments about mental health concerns in ways similar to the effects of this information on trained clinicians’ impressions (De Los Reyes & Marsh, 2011). Thus, our findings suggest that the influence that contextual information has on judgments is not exclusive to expert judgments. Instead, these contextual influences may reflect a general set of categorization and mental reasoning processes. Specifically, our research demonstrates that which individual pieces of information
are seen as evidence of mental health concerns when first encountered may vary by the surrounding contextual information with which it presents. Future research should expand on our methodology and findings to determine how surrounding pieces of contextual information influence judgments of information relevant to important real-world decision making in other domains.

References


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