

SEXTING AMONG ADOLESCENTS

A gendered online phenomenon, related
to individual and social determinants

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ABSTRACT

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This thesis concerns sexting among Swedish adolescents and adolescent sexual development. Adolescence is a period of major bodily, cognitive, and social changes and of sexual exploration. As many post-millennials have intertwined their lives with digital technologies, this sexual exploration also occurs in the digital context in the form of sexting. Sexting is the sending of nude or semi-nude pictures or video clips online. With sexting being a relatively common phenomenon among adolescents, questions have been raised concerning why adolescents engage in it and with whom, what sexting experiences adolescents have, and how sexting affects adolescent sexual development. Answering these questions may be central to better understanding adolescent sexting and, more importantly, may shed light on the role of sexting in healthy adolescent sexual development. The three constituent studies of this thesis addressed these questions. In **Study I**, 1653 adolescents (mean age 14.20 years) completed a questionnaire. The results indicated that, depending on whom the adolescent had sexted with, the prevalence rates were 4.4–16.0% for sending sexts and 23.5–26.8% for receiving sexts. It was most common for participants to send sexts to a romantic partner, and the least common to a stranger. Girls were more likely to report negative experiences of sexting than were boys and felt more pressure to send sexts. Developmental factors such as age, perceived pubertal timing, online risk-taking, and peer and family support were all related to sexting, but different relationship patterns emerged depending on gender and to whom the sext was sent. In **Study II**, a hypothesized model was tested using SEM to examine whether different aspects of body image were related to sexting. The study showed that sexting was more common among adolescents who perceived appearance to be important for their self-image and in their social context (i.e., dysfunctional appearance beliefs). How much one monitors and views one's body as an object of others' desire (i.e., self-objectification) was also related to sexting with a stranger among boys. In **Study III**, 808 answers to an open-ended question were qualitatively analyzed for content, to examine the social norms that operate in the adolescents' peer groups. Among peers, sexting was seen as an acceptable activity based on certain conditions, for example, that it occurs within a trusting relationship and that there is mutual agreement between the sexting partners. It was not seen as an accepted practice if, for example, the partner was someone unknown. In the peer group, it was also perceived that girls were unfairly treated when engaging in sexting, that sexting entailed certain risks, and that some adolescents may engage in sexting for attention or pleasure. The results of the three studies were discussed in relation to the overarching aims of the thesis. More specifically, sexting was assumed to be related to several psychosocial factors within and outside the adolescent. It was also concluded that it is important to consider whom the adolescents' sext with and that although sexting may play an important role in adolescents' sexual exploration and expression, it may also entail certain risks of harm. Sexting can be understood as one sexual behavior among others that may fit into adolescent sexual development.

Keywords: sexting, adolescents, gender, body image, peer norms

SWEDISH SUMMARY

Under tonåren sker en rad dramatiska fysiska, psykologiska och sociala förändringar. I samband med dessa förändringar blir det viktigt för ungdomar att utforska och förstå sig själv och sin sexualitet. Eftersom nätet idag i många avseenden är helt integrerat i ungas liv har utforskandet av sexualiteten också flyttat ut på nätet. Detta utforskande kan ibland ske genom så kallad "sexting" vilket är att skicka eller ta emot bilder eller videoklipp med sexuellt innehåll. Bland såväl forskare som andra vuxna finns det en oro att sexting är en skadlig företeelse som riskerar ungas hälsa. Ett exempel är farhågan att unga blir tvingade eller lurade att skicka bilder, eller att bilder sprids på nätet. Även om det är viktigt att ta dessa risker på allvar bör man också lyfta att långt ifrån alla unga utsätts för allvarliga konsekvenser av sexting. Forskning har pekat på att unga själva ibland ser fördelar med sexting och att de upplever att de får sexuellt utbyte av det. Flera forskare argumenterar därför att man bör betrakta sexting som en sexuell aktivitet bland andra, med både för- och nackdelar för unga. Sexting kan också vara en del i ungas sexuella utveckling då det kan vara ett uttryck för sexuellt utforskande eller sexuellt identitetsskapande. I vilka situationer de sextar, samt hur erfarenheterna av sexting ser ut? Dessa frågor är centrala för denna avhandling.

En av de viktigaste utvecklingsuppgifterna för unga under tonåren är att landa i sin förändrade kropp och skapa sig en sexualitet. Detta innebär bland annat att förstå sina sexuella behov, sexuella värderingar, och landa i sin sexuella orientering och sina sexuella uttryck. De sexuella erfarenheter som unga har under tonårstiden får därför stor betydelse i utvecklandet av en sexualitet. Här kan sexting spela roll då det möjliggör för många unga att ge uttryck och testa sin sexualitet, men också för att skapa sexuella relationer med andra. Ungas sexuella utforskande och sexuella uttryck, såsom sexting, är dock färgade av flertalet faktorer som återfinns hos ungdomar själva samt i deras sociala omgivning. Utgångspunkten för denna avhandling är att ungdomars utveckling beror på samspelet mellan individens egenskaper och egenskaper i den sociala omgivningen. I relation till sexting kan några av dessa individuella egenskaper vara ålder, kön, pubertetsutveckling, kroppsuppfattning, medan egenskaper i den sociala omgivningen kan vara familj, vänner och samhällsnormer.

Denna avhandling har som syfte att ge en bild av hur sexting bland ungdomar i Sverige ser ut vad gäller förekomst hos tjejer och killar, samt vem eller vilka unga sextar med, men också vad unga har för erfarenheter av sexting.

I **Studie I** svarade 1653 svenska tonåringar i högstadieåldern på en enkät. Resultaten visade att mellan 4.4% och 16.0% av deltagarna hade skickat

sexting, medan mellan 23.5% och 26.8% hade tagit emot sexting. Andelen som hade skickat eller tagit emot sexting hade att göra med om det var någon de var ihop med eller ej, om det var med kompisar, en vän på nätet eller någon de inte kände alls. Den vanligaste personen som deltagarna uppgav att de sextade med var någon som de var tillsammans med, men det var inte heller ovanligt att de hade sextat med helt okända personer. Det var också vanligast att få sexting skickade till sig från vänner eller jämnåriga i ens närhet. Studien visade att det var vanligare att killar frågade om att få sexting skickade till sig. Mer än en tredjedel av tjejerna hade känt sig pressade att skicka sextingbilder/videoklipp, medan en tiondel av killarna hade känt sig pressade att göra detta. Studien visade också att tjejer hade mer negativa erfarenheter av sexting än vad killar hade. Det var dock tydligt att en stor andel killar också hade haft negativa erfarenheter. Den faktor som hade störst betydelse för om sexting hade förekommit eller ej var individens benägenhet att ta risker på nätet. Även ökad ålder, att komma tidigare i puberteten, familje- och kamratstöd hade att göra med en ökad sannolikhet för sexting hos tjejer och killar.

I **Studie II** undersöktes möjliga samband mellan olika aspekter av kroppsuppfattning och sexting samtidigt som pubertetstiming kontrollerades för. De aspekter av kroppsuppfattning som studerades var: självobjektifiering (att se sin kropp som ett objekt för andras ändamål), dysfunktionella utseendeattityder (hur viktig utseendet är för självbilden och vilken betydelse den har för sociala relationer), kroppssjälvkänsla samt kroppsskam. I denna studie ingick 1563 ungdomar som besvarat enkäten som även ingick i studie I. Studien visade att högre grad av dysfunktionella utseendeattityder hängde ihop med ökad sannolikhet för att unga skulle sexta med någon man är i ett förhållande med, eller någon man inte kände. För killar var också självobjektifiering relaterat till högre sannolikhet för att sexta med någon man inte känner. Dock fanns det inget samband mellan kroppssjälvkänsla eller kroppsskam och sexting vilket en del tidigare studier visat.

Slutligen, i **Studie III**, undersöktes de normer som omger ungas sexting. I studien fick svenska unga besvara en öppen frågeställning om vad de tror att synen på sexting är bland jämnåriga. Totalt 808 svar analyserades med en innehållsanalys där flera kategorier kunde identifieras. Som exempel uttryckte en stor andel av deltagarna att sexting kunde vara okej om det utfördes inom ett förhållande eller med någon man litade på. Framförallt killar lyfte fram att sexting är okej om båda är med på det. Det framkom också att synen på sexting bland unga i stor utsträckning har att göra med kön. Som exempel nämndes att tjejer i högre grad riskerar att bli kallade för "hora" om de sextar, medan killar i högre grad blir kallade för "kung." Ett stort antal deltagare framhöll också att sexting kunde ses som något olämpligt. Detta motiverades av att sextingbilder/videoklipp kunde spridas till andra, eller att tonåringar är för unga för att sexta. Framförallt tjejer beskrev också att det fanns en uppfattning

bland unga att sexting är något man gör för att få uppmärksamhet. En större andel pojkar än tjejer beskrev också att unga som sextar gör det som ett sätt att roa sig eller för att få sexuell njutning.

Sammanfattningsvis visade studierna i avhandlingen att sexting har att göra med ett stort antal faktorer som är relevanta för ungas sexuella utveckling. Dessutom verkar de normer som omger ungas sexting innehålla heteronormativa aspekter, att sexting främst bör ske mellan en tjej och en kille, samt könsstereotypa aspekter, exempelvis att tjejer bör vara mer restriktiva med sexting än killar, som också omger ungas sexualitet i allmänhet. Baserat på dessa resultat kan det därför vara viktigt att lyfta betydelsen av ungas agens när de sextar, det vill säga de ungas sexuella handlingsutrymme, där unga känner att de kan uttrycka sig och sexta på egna villkor och inte andras. Eftersom unga är i en livsperiod av sexuellt utforskande kommer vissa ungdomar också utforska sin sexualitet på nätet, där sexting kan vara en betydelsefull del.

LIST OF PUBLICATIONS

This thesis consists of a summary and the following three papers, which are referred to by their Roman numerals:

- I. Burén, J., & Lunde, C. (2018). Sexting among adolescents: A nuanced and gendered online challenge for young people. *Computers in Human Behavior*, 85, 210–217. <https://doi.org/10.1016/j.chb.2018.02.003>
- II. Burén, J., Lunde, C., & Holmqvist Gattario, K. (2020). The role of appearance esteem, dysfunctional appearance beliefs, and self-objectification in adolescents' sexting behaviors. Under revision.
- III. Burén, J., Holmqvist Gattario, K., & Lunde, C. (2020). What do peers think about sexting? Adolescents' views of the norms guiding sexting behavior. Under revision.

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*Jonas Burén
Gothenburg, September 2020*

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INTRODUCTION

Adolescence is a period in life characterized by dramatic physical, cognitive, and social transitions. It is also a time when adolescents explore who they are by having new experiences and social relationships (Steinberg, 2011). For post-millennial adolescents, born in the later 90s and in the 00s, new digital technologies have allowed them to explore themselves by creating and managing their social identity online (Livingstone, 2008) and to seek new knowledge and experiences (Burns & Gottschalk, 2019). Digital technologies are also used by adolescents to explore their sexuality and engage in sexual behaviors. One way of doing this is by *sexting*, which refers to the creation, sharing, and forwarding of sexually suggestive, nude or semi-nude images or video clips through digital technologies (Lenhart, 2009; Ringrose et al., 2012). Internationally, adolescent sexting has been a controversial behavior the benefits versus risks of harm of which have been much debated in legal settings, the public sphere, and among scholars (Draper, 2011; Döring, 2014; Rollins, 2015; Salter et al., 2013). For example, some have argued that sexting should be banned altogether, given that it generates child pornographic material (Wastler, 2010), or that sexual education should employ an abstinence-only approach toward sexting given its risks of harm (Albury et al., 2017; Döring, 2014; Krieger, 2017). Others have maintained that sexting includes elements that are beneficial for adolescent sexual exploration, such as building intimacy with a romantic partner (Cooper et al., 2016; Lenhart, 2009). Whether or not sexting should be viewed with skepticism, the debate seems to emanate from a more general debate on how society should promote safe sex and, at the same time, not compromise the need for sexual exploration and expression. This thesis will examine sexting among Swedish adolescents. It strives for a comprehensive understanding of a phenomenon that includes both opportunities and risks, and that is situated within adolescents' psychological development.

What is sexting?

Sexting is known to most members of younger generations. A simple search on Google with the word “sexting” generates many results, with the top search results being from young people’s and women’s magazines, such as *Bustle* or *Cosmopolitan*, that provide tips and ideas on how one can excel at the best “steamy” sexting (e.g., “How to sext like an absolute pro,” 2020; Marin & Steber, 2020). On the surface, these search results convey the sense that sexting

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is seen as a benign sexual behavior that can “spice up” a romantic relationship. Scientific research on adolescent sexting, however, has applied a more nuanced perspective that considers both the opportunities and risks of sexting. One issue that, however, has plagued this research is the varied definitions of sexting.

Defining adolescent sexting

When the word sexting was first used, it referred to the practice of sending short texts with sexual content via the short message service (SMS) or instant messaging services such as MSN Messenger (Crofts et al., 2015). As communication via the Internet has become more visually based, for example, through Instagram, Kik, or TikTok, so has the definition of sexting. This means that the definition of sexting has become broader and relies more on visual-based practices, such as sending nude or semi-nude images through Snapchat or videos of oneself with sexual content through MMS.

To date, sexting has been variously defined across studies (Barrense-Dias et al., 2017; Drouin et al., 2013; Van Ouytsel, Walrave, & Ponnet, 2018). Some studies define sexting as only the sending or forwarding of self-produced texts or images of a sexual nature via the Internet, while other studies also include video and webcam sex (Barrense-Dias et al., 2017; Drouin et al., 2013; Klettke et al., 2014; Madigan et al., 2018). In some studies, it is unclear whether the participant had sent or just received sexts (Ybarra & Mitchell, 2014). Another issue with the term sexting is that adolescents seldom use this term to describe their online sexual activities (Barrense-Dias et al., 2019; Crofts et al., 2015). Instead, adolescents use words such as “exchanging pictures,” “taking sexy selfies,” or in some cases “receiving or sending a tit/dick pic” (Albury et al., 2013; Lee et al., 2013). In a recent focus group study originating from the same project as this thesis (unpublished data, not included in this thesis), Swedish adolescents referred to sexting as sending “nudes” or “nude images” or “nude videos.”

The problem with using inconsistent definitions of sexting is that it causes confusion about what phenomenon is being investigated (Barrense-Dias et al., 2017). For instance, sexting as referring only to sending sexy text messages could arguably be a different phenomenon from sexting that includes sending pictures and video clips of oneself (Van Ouytsel Walrave, & Ponnet, 2018), given that the latter produces sexual material based on one’s body that can be stored by the recipient. Inconsistent use of the term sexting may have created a situation in which nuances have been lost in the research. For instance, voluntarily sending sexts to a consenting receiver differs greatly from sexting involving abuse, pressure, or coercion (Wolak & Finkelhor, 2011). With these issues in mind, this thesis will use the definition provided by Lenhart (2009) and Ringrose et al. (2012): Sexting is the creation, sharing, and forwarding of

sexually suggestive, nude or semi-nude images or video clips through digital technologies. The main benefit of this definition is that it is broad and incorporates many of the sexting characteristics that many other scholars have considered in their research.

Prevalence rates of adolescent sexting

Several studies have investigated the prevalence rates of sexting among adolescents. When comparing these studies, it is evident that prevalence rates tend to differ widely across studies, partly due to the inconsistencies mentioned above when defining sexting (Barrense-Dias et al., 2017; Madigan et al., 2018). In 2018, Madigan and colleagues synthesized these results and conducted a meta-analysis of 39 studies including a total of 110,380 adolescents (younger than 18 years, mean age 15.16) primarily from the USA and European countries (Sweden not included). This study found that the average prevalence rates among adolescents were 14.8% for sending sexts and 29.4% for receiving sexts (Madigan et al., 2018). This study may at this point be the best indicator of the approximate prevalence rates across countries, showing that sexting is a relatively common sexual behavior among adolescents. In Sweden, the cultural context of the present studies, knowledge of adolescents' sexting is still scarce. However, a Swedish study of an 18-year-old adolescent sample found that around 20% of participants had sent sexts to others (Jonsson et al., 2014). This higher rate of sexting among Swedish adolescents compared with Madigan et al. (2018) findings could be explained by the higher mean age of participants in Jonsson et al.'s (2014) study.

Several studies have found that the prevalence rates of sexting tend to increase as adolescents get older (Baumgartner et al., 2014; Campbell & Park, 2014; Dake et al., 2012; Gámez-Guadix et al., 2017; Lenhart, 2009; Mitchell et al., 2012; Rice et al., 2012; Van Ouytsel et al., 2020; Wood et al., 2015). For young adolescents aged 12–14 years, sexting is considerably less likely than among older adolescents aged 15 or older (Kopecký, 2012). That sexting is more likely among older adolescents is expected, given that the likelihood of engaging in sexual activities increases with age (Diamond & Savin-Williams, 2009).

Studies of prevalence rates by gender have presented mixed findings. Most studies find no differences between boys' and girls' likelihoods of receiving and sending sexts (Campbell & Park, 2014; Dake et al., 2012; Lenhart, 2009; Rice et al., 2012; Temple et al., 2014; Vanden Abeele et al., 2014; Van Ouytsel et al., 2020). However, some studies show that boys are more likely to send and receive sexts (Beyens & Eggermont, 2014; Gámez-Gaudix et al., 2017), while others show that girls are more likely (Mitchell et al., 2012; Reyns et al., 2013). In Sweden, Jonsson et al. (2014) found some gender differences in prevalence rates among boys born outside Sweden, girls born in Sweden, girls

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living with both parents, and girls living in families with some or severe financial problems, these groups being slightly more likely to have sexted. In their 2018 meta-analysis, however, Madigan et al. found that gender did not moderate the prevalence of sexting, which leads to the conclusion that when prevalence rates are aggregated, there seem to be no meaningful differences between boys and girls in terms of the prevalence of sexting.

Whom do adolescents sext with?

Previous studies have also shown that sexting most commonly occurs within romantic relationships (Cooper et al., 2016; Lee et al., 2015; Lenhart, 2009), but that some adolescents may sext with people they have just met or have more casual relationships with (Lee et al., 2015). These studies refine our understanding of adolescent sexting, showing that it occurs within different types of relationships. The separation of different recipients of sexting has been largely overlooked in previous research. This is unfortunate, as sending a sext to a romantic partner whom the adolescent has known for a long time may differ qualitatively from sending sexts to someone completely unknown (e.g., a stranger). Indeed, studies have suggested that contact with strangers online carries more risks, for example, of child grooming, sexual assault, and unwanted sexual solicitation (Dowdell et al., 2011; Fleming & Rickwood, 2004; Livingstone et al., 2011; Rice et al., 2014; Williams et al., 2013; Wolak et al., 2008). Even though sexting with strangers may carry more risk, it should be emphasized that sexting with a romantic partner is not without risk; for example, romantic partners may indeed disseminate sexts to others (Ringrose et al., 2012). In any case, differentiating whom adolescents sext with seems important for better understanding adolescents' different experiences of sexting.

The above findings highlight that it is crucial to investigate whom adolescents sext with. Different processes may be in play when adolescents sext with people they know compared with people they have never met before. In addition, sexting with a romantic partner may be a way of showing mutual affection and of building intimacy (Lenhart, 2009; Setty, 2019; Thomas, 2018), while sexting with a stranger may be an expression of sexual curiosity and of a need for excitement. Indeed, Peter et al. (2006) concluded that early adolescents (aged 12–14 years) who are exploring themselves and their identities are more likely to talk to strangers online to test and experiment with different identities. For some adolescents, contact with strangers may also be a way to attract attention from others, which they may not get from their offline contacts (Valkenburg & Peter, 2007). This, in turn, may increase the possibility that adolescents will engage in sexting situations with strangers (Jonsson et al., 2015). It may therefore also be important to investigate the factors associated with different types of sexting partners in order to better understand when and

why adolescents sext with romantic partners, friends, or people they know only on the Internet.

Opportunities and possible risks of sexting

Research on sexting, especially in the early years of sexting research, has adopted a risk frame, the “deviance discourse” in which the potential harms of sexting are at the center (Döring, 2014; Englander, 2019). The deviance discourse has been criticized for being one sided, precluding insights into the opportunities that sexting may present for adolescents (Döring, 2014). In contrast to the deviance discourse, Döring (2014) has argued that research on sexting would benefit from instead adopting a “normalcy discourse” in which sexting is considered a normal behavior that is part of adolescents’ sexual expression and need for intimacy. Within a normalcy discourse, the potential harms of sexting are still acknowledged, but the opportunities of sexting receive equal weight (Cooper et al., 2016; Döring, 2014; Kosenko et al., 2017). Considering the potential opportunities and risks presented by sexting is a careful balancing act that requires that one or the other should not receive undue attention.

Qualitative studies have highlighted some of the positive opportunities presented by sexting and shown that adolescents perceive sexting as “a fun way to flirt” and that adolescents can use sexting to attract someone they are interested in (Englander, 2012; Henderson, 2011; Jonsson et al., 2015; Lenhart, 2009; Reed et al., 2020; Thomas, et al., 2018). For some adolescents, sexting is also seen as part of having a romantic relationship (Englander, 2012; Lenhart, 2009; Setty, 2019; Thomas, et al., 2018). Studies have also indicated that adolescents themselves stress several positive functions and outcomes of sexting. For example, adolescents have described sexting as a form of sexual expression (Bond, 2011; O’Sullivan, 2014) and as a way to receive positive feedback and approval from peers (Vanden Abeele et al., 2014). Quantitative studies also confirm some of these adolescents’ reports, showing that sexting was beneficial for relationships and could increase passion within a romantic relationship (Drouin et al., 2017; Van Ouytsel, Walrave, & Ponnet, 2019a). These studies provide a combined picture that sexting presents several opportunities for adolescents, which is important to keep in mind.

Nevertheless, it is vital to consider the possible risks of sexting, as the risk of harm is real and may have severe consequences for adolescents. One of the most cited risks of sexting is having sexts spread to unintended others (Albury & Crawford, 2012; Lenhart, 2009; Thomas, 2018). For many adolescents who sext, who may be shamed if such spread happens, this is a source of anxiety and worry (Lenhart, 2009; Setty, 2019). Sexts can also lead to bullying and cyberbullying (Cooper et al., 2016; Ojeda et al., 2019; Van Ouytsel, Lu et al., 2019). In some cases, sexting have even been linked to blackmail, abuse,

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coercion to continue sexting (Kopecký, 2017; Wolak & Finkelhor, 2011; Wolak et al., 2018), and suicide (Nilsson et al., 2019; Siegle, 2010). It should also be noted that the likelihood of experiencing harm from sexting may be greater for adolescents who are already vulnerable (Englander & McCoy, 2017). Some vulnerability factors identified in the research are: youth, sexual risk-taking, being initially pressured to sext, sending to multiple receivers, and sending to someone outside a romantic relationship (Cooper et al., 2016; Englander & McCoy, 2017). Studies have also found LGBTQ adolescents to be more vulnerable to cyberbullying, victimization, and sexual solicitation from sexting (Gámez-Guadix et al., 2015; Marengo et al., 2019).

The above findings indicate that sexting may potentially harm adolescents, but that it may present opportunities as well. The risk of harm may also be greater depending on other factors within and around the adolescent, such as psychological health or the parent–child relationship. This is in line with a general observation concerning adolescents’ overall online behaviors. Adolescents who are vulnerable offline (e.g., having low self-esteem, psychological difficulties, poor familial relationships, or belonging to a sexual minority) are also more vulnerable online (Burns & Gottshalk, 2019; Livingstone & Bulger, 2014). With these considerations in mind, it is important to understand when sexting may entail opportunities or risk of harm. However, to understand adolescents’ positive or negative experiences of sexting, we first need to understand the developmental context of these adolescents and the challenges associated with it.

Adolescence

Adolescence is typically said to occur between the ages of 10 and 19 years (WHO, 2020). Adolescence can be characterized as the period when the individual transitions from being a child into adult life (Steinberg, 2011). Adolescence is a period when the adolescent undergoes several physical, cognitive, and social changes that are important for overall human development (Steinberg, 2011). The next sections will briefly describe these changes and how they may relate to sexuality and sexting.

Physical changes

During adolescence, significant physical changes occur as a result of entering puberty. Puberty is the biological process in which the adolescent becomes able to reproduce (Alsaker & Flammer, 2020). In this biological process, the hormonal balance shifts such that adolescents gain an abundance of sex hormones released by the body (Westphal, 2012). These sex hormones typically increase body height and body fat and affect the secondary sex characteristics, resulting in, for example, testicle growth for boys and breast

growth for girls (Alsaker & Flammer, 2020; Westphal, 2012). The onset of puberty varies widely between adolescents, and what causes the hormonal changes that trigger puberty are not entirely understood, but genetic and environmental factors have both been found to play roles (Choi & Yoo, 2013; Kelly et al., 2017). Later evidence also points to the hormonal changes resulting from increased levels of leptins (fat cells) in the body, which prompts the brain to release the hormones that trigger puberty (Susman & Dorn, 2013).

As the onset of puberty varies between adolescents, their experiences of puberty also tend to differ (Alsaker & Flammer, 2020). For instance, as puberty is usually followed by heightened sexual interest and sex drive (Diamond & Savin-Williams, 2009), adolescents who undergo puberty at an early age may be more likely to engage in sexual behaviors than are their peers (Baams et al., 2015; Moore et al., 2014). Both early and late pubertal timing can have positive and negative consequences for different aspects of adolescents' psychosocial development, but these consequences tend to differ between girls and boys (Temple-Smith et al., 2016). For example, early-maturing boys may be more popular in their peer group and have higher self-esteem than do their peers, while late-maturing boys may be at higher risk of bullying in their peer group (Collins & Steinberg, 2006; Steinberg, 2011). Early-maturing girls may be at higher risk of depression, substance abuse, body dissatisfaction, and sexual risk behaviors than are their peers. In contrast, late-maturing girls tend to experience fewer psychological difficulties and perform better at school (Mendle et al., 2007).

Why the timing of puberty seems to have such a profound effect on adolescents' psychosocial development may be explained by the transitional stress that being different from peers (e.g., in physical appearance) may create (Brooks-Gunn et al., 1985; Simmons & Blyth, 1987). Early-maturing adolescents have also not had the same amount of time as their peers with normative pubertal timing to become psychologically and emotionally ready to adapt to the changing circumstances that accompany puberty (Peskin, 1967). Girls may be especially disadvantaged, as they usually enter puberty before boys (Stattin & Magnusson, 1990). The physical changes associated with pubertal development may also be stressful for early-maturing girls, who may perceive their bodies as different from those of their peers and, at the same time move away from Western appearance ideals that emphasize thinness (Stice, 2003).

Previous studies have indicated that puberty could be a factor affecting online sexual behavior. For instance, early-maturing boys were more likely to download and watch pornography from the Internet (Skoog et al., 2009) and to be sexually active online (Skoog et al., 2013). Other studies, however, have found no relationship among either girls or boys between pubertal timing and online sexual behavior when age was entered into the model (Sorbring et al.,

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2014). Beyond these studies, it is also unclear whether pubertal timing relates to sexting.

Cognitive changes

Several psychological changes also characterize adolescence. For example, adolescents develop more advanced cognitive capabilities that facilitate abstract thinking, metacognition, reasoning, and problem-solving (Keating, 2004; Schneider & Löffler, 2016). Due to these more advanced cognitive capabilities, adolescents become increasingly capable of understanding other people's thought processes and feelings (Choudhury et al., 2006). However, adolescents' cognitive development is, in contrast to their physical changes, a slower incremental process that occurs well into the twenties, meaning that the brain is not fully matured at the end of adolescence (National Institute for Mental Health, 2011). For instance, the prefrontal cortex, which houses impulse control and attention, is less developed than regions in the brain that house reward sensitivity (Bava & Tapert, 2010). Being less able to control impulses may impede adolescents' decision-making, which has been identified as one reason why some adolescents take more sexual risks than do adults (Steinberg, 2008).

Another social cognitive feature characteristic of adolescence is *adolescent egocentrism*, which can result from adolescents' improved abilities for introspection. This may lead some adolescents to be more preoccupied with themselves, with most of their thoughts revolving around their person (i.e., self-absorption). At the same time, the adolescent is also better at understanding that others' thoughts are distinct from their own thoughts (Blakemore, 2012; Choudhury et al., 2006). For adolescents, this may create a perception that other people's thoughts are also preoccupied with the adolescent ("imaginary audience"), and that their own person is invulnerable ("personal fable") (Elkind, 1967). The idea of having an imaginary audience may make adolescents believe that their behavior and physical appearance are continuously being scrutinized by others, which may affect how they choose to behave or present their appearances to others (Zheng et al., 2019). The idea of being invulnerable may also make some adolescents more likely to underestimate risks (Alberts et al., 2007). This may, in turn, predict sexual risk-taking behaviors, such as less condom use (Serovich & Greene, 1997). Beliefs in invulnerability ("personal fable") have also been found to predict increased likelihood of sexting (Popovac & Hadlington, 2020).

Social changes

The physical and cognitive changes facing adolescents do not occur in a vacuum but interact with the adolescent's changing environment and social context, most notably the familial and peer contexts. Both these contexts are

changing dramatically during this period, and adolescents must understand their new roles within these contexts.

Parents

During adolescence, the parent–adolescent relationship changes for most adolescents. The parent–child bond develops into a more equal relationship in which many adolescents have more say over their own decisions and life choices (Collins & Laursen, 2004; McGue et al., 2005). One reason for the change in the adolescent–parent relationship is that the adolescent’s needs and circumstances have changed, including an increased need for privacy (Hawk et al., 2009) and for more time spent with peers and friends (Brown, 2004; Csikszentmihalyi & Larson, 1984; Lam et al., 2014). Indeed, one crucial developmental task during adolescence is to seek *autonomy* from parents, which is an ongoing process that starts during the early childhood years but gains more importance during adolescence (Zimmer-Gembeck & Collins, 2003). In the process of gaining autonomy from parents, adolescents start to regulate their activities and engage in social behaviors outside the family. Concurrently, the information parents receive from their children about these activities decreases (McElhaney et al., 2009). For the adolescent, one way to build independence from their parents is through their sexual expression (Temple-Smith et al., 2016).

Parental influence on adolescents’ decisions and behaviors remains substantial, however. Adolescents’ building of autonomy from parents is a gradual process that continues well into the early adult years (Zimmer-Gembeck & Collins, 2003). Also, for many adolescents, parents still play a significant role in providing emotional support (Gutman & Eccles, 2007). Indeed, the quality of the emotional support from parents is sometimes central to healthy psychosocial development (Blum & Rhinehart, 2000), in which emotional bonding to parents increases well-being during and after adolescence (Shaw et al., 2004). Support from and closeness to parents help many adolescents handle stress in their everyday lives, helping them cope with tangible problems that may arise (Frey & Röthlisberger, 1996). Parental support and closeness may also be an important resource for ego development and self-esteem (Davis & Friel, 2001; de Graaf et al., 2011). Supportive parenting may also serve as a positive model of behavior for some adolescents, guiding them in relationships outside the family, for example, with romantic partners (Lemieux et al., 2010; Newcomer & Urdry, 1987).

Parents can have a role in helping adolescents explore their sexuality, providing emotional support that facilitates the sexual well-being of the adolescent (Temple-Smith et al., 2016). The involvement of parents in this is, however, a careful balancing act. Too much parental control over their sexual life may inhibit some adolescents’ sexual exploration, and some adolescents

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may react by engaging in behaviors they would otherwise not choose (Weinstein et al., 2012). Thus, warm and supportive parenting that allows for independent sexual exploration and provides guidance on sexual health issues is expected to be beneficial for healthy sexual development (Meschke et al., 2004). Sex may, however, be perceived as a delicate and often sensitive topic to discuss within the family, and few parents may want to address it (Afifi et al., 2008; Elliot, 2010; Rosenthal & Feldman, 1999).

Furthermore, the influence of parents on adolescents' sexuality may differ between adolescents. Indeed, the parent-child relationship has been based on a transactional exchange between the adolescent and the parents since birth (Collins & Madsen, 2003). In this exchange, the adolescent is active in shaping the parent-child relationship, in which the needs, behaviors, and personal characteristics of the adolescent significantly influence how the parents treat the adolescent (Collins & Laursen, 2004; Wills & Dishion, 2004). It is thus likely that, depending on the perceived needs, behaviors, and personal characteristics of the adolescents, different parents will use different strategies and behaviors when they approach their children's sexuality (Henrich et al., 2006; Mitchell et al., 2005). For instance, some parents may perceive that adolescents who are more impulsive or risk-taking may need more guidance on sexuality than do adolescents who have previously shown themselves to be more restrained and responsible in their behaviors.

Peers

During adolescence, the peer context emerges as one of the most important influences on adolescent development (Brown, 2004). Peers can be crucial in helping adolescents gain autonomy from parents and develop their own identity (Collins & Laursen, 2004), which may be why most adolescents spend more time with peers and build close relationships with friends (Lam et al., 2014). Peers also play a major role in healthy development. Indeed, feelings of intimacy, emotional support, and closeness provide most adolescents with emotional strength, social stability, and a sense of belonging (East et al., 1987; Traylor et al., 2016; Williams & Anthony, 2015). However, peers can have negative effects and can promote delinquent behaviors (Brown, 2004). For instance, some adolescents may be more likely to engage in risk-taking behaviors such as alcohol use, substance abuse, and sexual risk-taking behaviors if peers also engage in them (Nash et al., 2005; Santor et al., 2000).

The influence of peers is complex and can differ between adolescents, but generally, one of the more potent ways peers can influence adolescents' behaviors is through the norms and attitudes that peers convey (Gibson & Kempf, 1990). Some adolescents who start to understand their role and behaviors may be unsure of what behaviors are acceptable and appropriate and may look toward others as a reference group to gain this understanding (Thornberry et al., 1994). Regarding sexuality, the role of peers may be

especially strong, given that adolescents are often insecure in their sexuality (Temple-Smith et al., 2016). For some adolescents, being accepted by peers is especially important given the severe negative social consequences of not belonging, such as being bullied (de Bruyn et al., 2010). Thus, adolescents will likely be sensitive to perceiving and following the social norms in the peer group, i.e., what is accepted by the peer group, and what behaviors peers engage in.

According to Cialdini and Trost (1998) peer norms can stem from two sources of information: first, whether the adolescent perceives that specific behaviors are frequent among peers (*descriptive* norms) and, second, whether the adolescent perceives that specific behaviors are approved of by peers (*injunctive* norms) (Cialdini & Trost, 1998). Both descriptive and injunctive norms have been found to influence adolescents' sexual behaviors. For example, a recent meta-analysis has shown that adolescents who perceive their peers engaging in sexual activities, and who perceive that peers approve of those sexual activities, are more likely to themselves engage in the same sexual activities (van de Bongardt et al., 2015).

Previous research has shown that descriptive peer norms are among the strongest predictors of sexting (Van Ouytsel, Van Gool et al., 2017; Walrave et al., 2015). Similarly, quantitative studies have shown that injunctive norms are related to adolescent sexting behaviors. For instance, sexting is more likely if peers consider it more acceptable (Van Ouytsel, Van Gool et al., 2017). What may be missing in these studies, however, is the content of the injunctive norms. In contrast to descriptive norms, injunctive norms can include detailed information about when, how, and why sexting is or is not accepted. Indeed, injunctive norms may be shaped by how sexuality, in general, is viewed by the adolescent peer group. Consequently, injunctive norms may hold valuable information about how sexting is viewed in the adolescent peer group.

Body image change

With the pubertal changes, adolescents find themselves observing rapid changes in their looks, rendering the body dissimilar from what the adolescent was used to seeing in the mirror as a child (Wertheim & Paxton, 2012). This will change how adolescents feel about, think about, and perceive their own body and appearance – their so-called body image (Grogan, 2016). The body also gains a new social meaning in which one's social surroundings more frequently start to notice and judge one's body, and appearance-related conversations become more common in the peer group (Ricciardelli, 2012; Wertheim & Paxton, 2012). Thus, another critical developmental task for adolescents is to understand their changing body and incorporate it into the self, create an understanding of how others perceive their physical appearance, and feel comfortable within their own body (Erikson, 1968; Kling, 2019).

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However, for many adolescents, the bodily changes during adolescence are a source of significant discomfort, anxiety, and shame, and many adolescents develop body dissatisfaction, which refers to negative feelings, thoughts, and perceptions regarding the body and one's appearance (Grogan, 2016). Indeed, in a US 10-year longitudinal project, it was found that body dissatisfaction increased among both adolescent girls and boys over time, although girls felt more body dissatisfaction (Bucchianeri et al., 2012). Similar patterns have been observed in Sweden, where a significant decrease in body satisfaction occurs over the early and middle adolescent years, with girls experiencing a steeper decrease than do boys (Frisén et al., 2014; Holmqvist Gattario et al., 2020).

Body dissatisfaction has been related to numerous negative outcomes, such as lower self-esteem (Davison & McCabe, 2006), increased risk of depression (Bearman & Stice, 2008), unhealthy dieting (Lowe et al., 2012), and eating disorders such as anorexia and bulimia (Crowther & Ridolfi, 2012; Stice, 2002). Body dissatisfaction has also been found to negatively affect adolescents' sexuality, for example, resulting in less enjoyment during sex (Cash et al., 2004; Claudat & Warren, 2014; Woertman & van den Brink, 2012), and being linked to sexual risk behaviors, such as less condom use and having multiple sexual partners (Akers et al., 2009; Eisenberg et al., 2005).

Regarding sexting, the relationship to body image seems plausible, given that sexting is a visually based practice in which the body and appearance become focal, possibly leading to appearance-related comments (Bianchi et al., 2017; Jewell & Brown, 2013; Ringrose et al., 2012). This may make the adolescent more attentive to their own body and appearance, leading to insights into how others perceive and treat one's body. For some adolescents, sexting may have a beneficial effect as they may become more comfortable with their own body, feeling in control of how it is presented to others (Liong & Cheng, 2019). However, sexting may have a negative effect in that the body may become commodified, meaning that the body is only seen as a means for others' sexual gratification (Rice & Watson, 2016). Both these scenarios will undoubtedly have an effect on the adolescent's body image, and subsequently, on the adolescent's overall healthy sexual development.

Adolescent sexual development and sexting

One critical aspect of adolescence is the development of an adult sexuality. Indeed, sexuality issues become the focal points of many adolescents' lives. Sex is more frequently discussed in the adolescents' social surroundings, and adolescents may receive sexual attention from others (Temple-Smith et al., 2016). Therefore, an important task for most adolescents is to develop a healthy

sexuality (Temple-Smith et al., 2016). According to Brooks-Gunn and Paikoff (1993), a healthy sexuality involves feeling comfortable with one's changing body, accepting sexual urges, engaging in sex on one's own terms (i.e., sexual agency), and practicing safe sex.

Developing a healthy sexuality also means that it is important for most adolescents to orient the sexual self in relation to others by developing a sexual identity (Dillon et al., 2011). The process of developing a sexual identity involves, according to Dillon et al. (2011), identifying and recognizing one's own sexual needs, acknowledging one's sexual values and sexual orientation, and understanding one's sexual preferences and sexual expressions in relation to others. This is primarily done through sexual experiences, undertaken to acquire sexual knowledge during adolescence (Dillon et al., 2011). The process of sexual exploration can both be a private matter and occur in relation to the adolescent's social context. Subsequently, the quality of these sexual experiences is central to sexual identity formation and overall healthy sexual development (Dillon et al., 2011; Temple-Smith et al., 2016).

One manifestation of this sexual exploration and expression can be sexting. Indeed, studies have shown that many adolescents use sexting for sexual release, to affirm the body, to build intimacy in romantic relationships, and to gain potential sexual partners (Cooper et al., 2016; Lenhart, 2009; Morelli et al., 2016; Thomas, 2018; Waling et al., 2020). These experiences have the potential to help adolescents understand their own sexuality, for example, what they like, how they like it, how they see their role in a sexual situation, and how others perceive them. Thus, sexting can promote healthy sexual development for some adolescents, as it may function as a tool with which adolescents explore and express their sexuality and gain knowledge of their sexual selves.

However, for some adolescents, sexting may be associated with negative sexual experiences (e.g., spreading of sexts to others and being pressured/coerced for sexts) that subsequently may have a negative impact on adolescent sexual development. Thus, sexting can have both positive and negative effects on adolescent sexual development, likely depending on factors both within and outside the adolescent (Temple-Smith et al., 2016). The following section will present a developmental framework that positions sexting within adolescent sexual development.

Bioecological model of adolescent sexual development

One theoretical framework that covers the biological, social, and cultural factors that affect adolescent development is the *bioecological theory of human development* suggested by Bronfenbrenner (2005). According to Bronfenbrenner (2005), human development is shaped by four integrated components: *process, person, context, and time* (i.e., the PPCT model).

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Bronfenbrenner (2005) named *process* as the driving force of human development and describes it as the intertwined and dynamic interaction of the person and their context, also referred to as *proximal processes*. It is in the proximal processes that the adolescent participates in activities with others, learns new skills, and gains knowledge that is essential for the adolescent to understand the world around them and how they may fit into it (Tudge et al., 2009).

The component *person* refers to the biological and psychological characteristics that the individual brings to the proximal processes. For adolescents, these may involve gender, age, and pubertal maturation, but they can also involve psychological aspects such as motivations, emotions, and experiences. According to Bronfenbrenner (2005), the individual's previous experiences and personal characteristics will drive the individual to seek specific interactions with the environment. Accordingly, the interaction the individual has with the environment via proximal processes will cause specific reactions, creating a continuous stream of feedback between the individual and the environment. Over time, the interaction between the individual and the environment will make the individual develop unique context-based dispositions of behaviors (Bronfenbrenner, 2005). For sexuality, examples could be the adolescent's sexual preferences or orientation, which may make the adolescent seek sexual situations or sexual partners aligned with the preferences or orientation.

The third component, *context*, involves any environmental factors that may interact with the proximal processes, both directly and indirectly (Bronfenbrenner, 1979). In the PPCT model, the context is structured into four distinct interacting layers organized based on their physical proximity to the individual (Bronfenbrenner, 1979, 2005). These systems are the following: the *microsystem*, which is the social context closest to the adolescent, such as family, school, and peers; the *mesosystem*, which considers the interrelations of the factors in the microsystem, such as friends interacting with the school or parents; the *exosystem*, which includes the broader social context that may indirectly influence the adolescent, such as the media or the work situation of the parent; and lastly, the *macrosystem*, which is an enveloping system comprising the other systems from which cultural values and agreed practice and laws are transmitted (Bronfenbrenner, 1979).

The last component, *time*, incorporates the constant and varying activities and interactions with the social environment that the individual has over time, as well as the cultural changes and historical events that occur during the individual's lifespan (Bronfenbrenner, 2005). This component comprises three parts: the specific events that occur in the proximal processes; whether the activity is consistent over time; and historical events or changes over time in a specific culture that may have certain cohort effects on the adolescent (Tudge et al., 2009).

The PPCT model thus provides a comprehensive framework for understanding the complex process of adolescent sexual development (Jones, da Silva, & Soloski, 2011). In the PPCT model, the active sexual exploration and expression of adolescents are expected to be proximal processes, as these involve active sexual activities that are shaped by the person, context, and time components. It is also through the proximal processes that the individual gains the sexual experiences needed to develop a sexual identity (Dillon et al., 2011). Figure 1 shows a proposed visual representation of how the PPCT model could fit the sexual development of an individual.

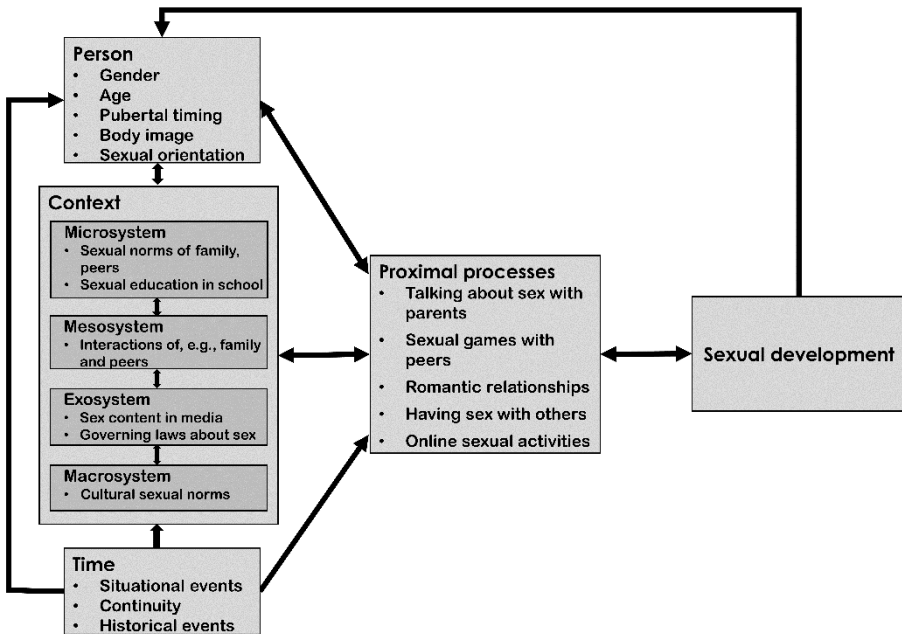


Figure 1. A hypothesized model of sexual development within the PPCT framework.

In the figure, the proximal processes represent adolescents' exploration of their sexuality in which they interact with their environment. The figure includes five examples of sexual activities representing the wide range of sexual activities in the proximal processes: talking about sex with parents or peers, sexual games with peers, having romantic relationships, and engaging in online sexual activities. Based on the tenets of the PPCT model, the sexual experiences gained from the proximal processes are also expected to differ between individuals given the combined influence of the person, context, and time factors. For instance, adolescents' sexual exploration as part of the proximal processes may differ based on the types of sexual situation they are inclined to seek and the different social norms that parents and peers in the microsystem transmit to them. These messages, in turn, may be affected by the

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interactions in the mesosystem, in which peers' views of adolescent sexuality are affected by what they learn in sexual education in school. In the exosystem, media messages about sexuality and sex may also affect the adolescents' own sexuality and the attitudes and views of parents and peers (Brown, 2002; Ward, 2016). Social norms, in turn, may also be shaped by the cultural sexual norms found in the enveloping macrosystem, which themselves are affected by the specific time period of society (Bronfenbrenner, 2005; Jones et al., 2011). Lastly, as Bronfenbrenner (2005) pointed out, development is not a static endpoint in the distant future of the adolescent but is continuously changing. As the adolescent evolves sexually, so too will the types of sexual exploration and expression the adolescent sees or has as viable alternatives in the proximal processes.

Social norms and sexual development

In the PPCT model, the environment was seen as having an important role in adolescent development, residing in the *context* component. In sexual development, this effect may be even more substantial given that sexuality has a peripheral position during childhood, but within a short time during adolescence, quickly becomes one of the most important aspects of adolescent development. It may become natural for some adolescents to look to their social surroundings for guidance regarding how to understand their emerging sexuality. Here, cultural influence, found in the macrosystem of context in the form of social norms about sexuality (e.g., gender role norms), may have an especially strong influence on adolescent sexuality (Gagnon & Simon, 2005; Temple-Smith et al., 2016). Two additional theoretical frameworks that specifically describe the role of social norms in adolescent sexual development are sexual script theory (Gagnon & Simon, 2005) and objectification theory (Fredrickson & Roberts, 1997).

Sexual scripts

The opportunities for human sexual expression are almost endless, and the same individual can engage in various sexual behaviors during the lifespan. Despite this, most people's sexual expressions tend to follow a similar trajectory, with few deviating much from the overarching repertoire of sexual expressions. The reason for this, according to Gagnon and Simon (2005), is that human sexuality is heavily ingrained in the culture in which the individual resides. Sexual script theory (Gagnon & Simon, 2005) posits that the individual's sexual expression follows cultural "sexual scripts." These sexual scripts function as guiding principles about each individual's role and appropriate behavior in sexual situations (Kurth et al., 2000; Rose & Frieze, 1993; Wiederman, 2015). Sexual scripts are primarily learned through

interaction with the social context, and for most adolescents, these are primarily parents and peers (Gagnon & Simon, 2005).

Simon and Gagnon (2003) noted that in most cultures, sexual scripts are age dependent, with specific sexual activities considered inappropriate when the individual is at certain ages, such as having sexual intercourse during childhood. The age dependency of sexual scripts makes it difficult for society to approach adolescent sexuality, as the adolescent is both viewed as a child but also acknowledged as having a sexual life (Wiederman, 2015). This, according to Simon and Gagnon (1984), has created a tendency for sexual scripts that concern adolescent sexuality to follow basic formulas of the “if, when, how, and why” of appropriate sexual behaviors. Specifically, appropriate sexual behaviors tend to follow timetables and action sequences of sexual activities, such as the appropriate ages for kissing, fondling, and sexual intercourse (Rosenthal & Smith, 1997). The sexual scripts for adolescent sexuality also tend to be heteronormative and gendered, in that sex is best performed in heterosexual relationships in which boys are perceived as sexual agents and girls as sexual guardians (Gagnon & Simon, 2003). For many adolescent girls and boys, the gendered sexual scripts may be especially prominent in affecting their sexuality and sexual opportunities (Wiederman, 2005).

Femininity and masculinity norms may shape how adolescents view and express their sexuality. In brief, femininity and masculinity norms follow historical gender views in which women are seen as having the chief responsibility for caring for others and being subordinate to men (Mahalik et al., 2005). In contrast, men are seen as having the dominant role in society, in which the ideal for men is to be strong, competitive, in control of their emotions, and not reliant on others (Kågesten et al., 2016). Sexual scripts that concern masculinity norms describe men as having a strong desire for sex while not being subject to women’s desires, having a strong “sex drive,” and being the sole initiators of sex (Masters et al., 2012). Sexual scripts concerning femininity norms, on the other hand, stipulate that women should not initiate sex or assert their sexual needs, and should have little knowledge of sex (Greene & Faulkner, 2005; Masters et al., 2012). Thus, the woman’s role in sex is to be the “gatekeeper” responsible for ensuring that sex is performed modestly while still being responsible for satisfying men’s sexual urges by being sexually available (Byers, 1996; Gagnon, 1990).

As femininity and masculinity norms are salient for adolescents, the repertoire of sexual expressions becomes restricted (Marsiglio, 1988), possibly taking the form of *sexual double standards*. Sexual double standards refer to the social practice of praising boys for engaging in sex, while at the same time stigmatizing and shaming girls for engaging in identical sexual behavior (Crawford & Popp, 2003). Sexual double standards are often maintained by family, peers, friends, and society as a whole (Martel et al., 2004). For

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example, if a girl breaks the femininity norm of being sexually modest, she may face sanctions such as teasing, shaming, blaming, and the monitoring of future sexual behaviors (Ringrose et al., 2013). Unfortunately, sexual double standards seem to have been carried over to online sexual behaviors. Studies of sexting have, for instance, shown that when girls engage in sexting, they risk being shamed or sanctioned for doing so, for example, being called “sluts” or “skanks” (Cooper et al., 2016; Lippman & Campbell, 2014; Naezer & van Oosterhout, 2020; Ringrose et al., 2013; Setty, 2019; Symons et al., 2018).

One main issue with sexual double standards in sexting that derive from femininity and masculinity norms is that they may restrict the opportunities for sexual expression and exploration via sexting (Lippman & Campbell, 2014; Ringrose et al., 2013). Sexual agency has been described as one of four aspects of healthy sexual development by Brooks-Gunn and Paikoff (1993). Furthermore, femininity and masculinity norms may also imply that sexting should be performed between a girl and a boy, minimizing and ignoring the sexual expressions of sexual minority groups such as LGBTQ adolescents. This of itself may further solidify the heteronormative discourse that surrounds adolescent sexuality, creating a conflict in sexual identity formation for many adolescents (Dillon et al., 2011).

Sexual objectification

In Western society, much value is placed on the body and its appearance, with physical attractiveness and “sexiness” seen as desirable ideals (Grogan, 2016). Individuals who can live up to these norms and ideals may, in Western society, be ascribed more positive attributes such as competence, intelligence, and sociability (Eagly et al., 1991; Jackson et al., 1995). However, the appearance norms and ideals associated with the female or male body are very different: women’s bodies should be thin, while men’s bodies should be athletic and muscular (Grogan, 2016).

The heavy emphasis on physical attractiveness in Western society may create a situation in which the body becomes *sexually objectified*, i.e., the body is an object of others’ desires that can be controlled and manipulated (Fredrickson & Roberts, 1997). Sexual objectification is typically more common for women than for men (though it does occur for men) (Calogero et al., 2011). The individual can experience sexual objectification almost every day in most settings, for example, by receiving “gazes” from others or receiving sexual comments about one’s body (Calogero et al., 2011). According to Fredrickson and Roberts (1997), the different treatments of women and men based on their body and appearance result from the gender stereotypes learned from a very young age in the socialization process. Sexually objectifying messages can be transmitted from several sources, for example, in interactions with family or friends or through watching mass

media (Calogero et al., 2011). Given the normalcy of sexual objectification in Western society, it is common for individuals to internalize the sexually objectified cultural ideals according to which they view the body as a sexual object. This is referred to as *self-objectification* (Fredrickson & Roberts, 1997). In self-objectification, individuals assume the observer view of themselves and their bodies as the object of others' desires, with the individual constantly monitoring their own body and appearance (Fredrickson & Roberts, 1997).

Self-objectification is expected to lead to several negative psychological consequences, such as appearance anxiety, body shame, and inattention to internal body states, which in turn may affect the sexuality and sexual functioning of the self-objectifying individual (Calogero et al., 2011; Fredrickson & Roberts, 1997; Wiederman, 2012). One possible explanation for why self-objectification may affect sexual functioning and behaviors is that it creates self-consciousness during sexual situations (Wiederman, 2012). This shifts the individual's attention away from pleasure and sexual desire during the sexual act (Wiederman, 2012). Sexual self-objectification may also increase the likelihood of detaching oneself as a sexual agent in sexual situations (Fredrickson & Roberts, 1997). Hence, the sexual desires of others receive more attention, and the individual will be distracted by pleasuring the sexual partner and by the need to be physically sexually attractive (Tolman, 2000). Indeed, in two studies, Calogero and Thompson (2009a, 2009b) found that among adult and college-aged women, self-objectification can lower sexual self-esteem (i.e., the sense of self as a sexual being) and sexual satisfaction. Self-objectification can also lower sexual self-efficacy, making people feel less able to perform sex, which in turn has been found to increase sexual risk-taking such as reducing condom use (Impett et al., 2006; Parent & Moradi, 2015). Furthermore, as the individual perceives the body as an object of others' desires, this may also create a perception that the body should be displayed and used by others, which may decrease assertiveness in sexual situations (Wiederman, 2000).

As with sexual scripts, sexual objectification can also have a role in adolescent's online sexual behaviors. It has been argued that sexting is a behavioral manifestation of sexual objectification, as the very act of sexting involves judging and assessing the body through depiction (Jewell & Brown, 2013; Ringrose et al., 2012). Through sexting, the adolescent mimics how the body is displayed in Western media, in which the sexualization of the body and beauty is the norm (Ringrose et al., 2012). Furthermore, as self-objectification creates a sense that the body is the object of others' desires, sexting may be viewed by some as a normative behavior that adheres to the sexualized norms surrounding the human body (Speno & Aubrey, 2019). Indeed, studies have found that self-surveillance (i.e., the behavioral manifestation of self-objectification) predicts an increased likelihood of sexting among adolescents

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and young adults (Bianchi et al., 2017; Liong & Cheng, 2019) and a favorable attitude toward sexting among adolescent girls (Speno & Aubrey, 2019).

Appearance norms and ideals thus also seem to play a role in adolescent sexting. Similar to sexual scripts, sexual objectification can restrict adolescents' opportunities for sexual expression and deprive adolescents of sexual agency. As self-objectification negatively affects how adolescents perceive their own bodies (McKinley, 1998), self-objectification may also decrease the likelihood that adolescents will feel comfortable within their bodies, and this has a negative effect on sexual development (Brook-Gunns & Paikoff, 1993). Whether or not self-objectification plays a substantial role in sexting is less understood at this point, which provides arguments for further research.

Sexual norms in Sweden

In recent years, gender role norms seem to have had less influence on adolescents' sexuality as fewer adolescents have adhered to them (Masters et al., 2012). This may be because these norms have been challenged in many countries due to the negative impact both sexual double standards and femininity and masculinity norms may have on adolescent sexual development (Starrs et al., 2018). One country that has especially challenged these norms is Sweden (the cultural context for this thesis). In Sweden, gender equality is maintained as a norm, which is reflected in the 2019 Gender Equality Index, designating Sweden the most gender-equal country within the EU (European Institute for Gender Equality, 2019). In Sweden, traditional gender roles are diffuse, with both men and women being expected to take part in the workforce and take care of the family (Sommestad, 1997). Gender equality is also maintained as a norm in the school system. Teachers are required by law to teach about gender equality and to treat girls and boys equally (The Swedish National Agency for Education, 2020). A recent study found that Swedish women were less likely than women from other countries to adhere to femininity norms (Kling et al., 2017). Similarly, Swedish norms surrounding adolescent sexuality tend to be liberal, with different sexual orientations and behaviors being highly tolerated (Johansson, 2016). Gender equality is also reflected in the compulsory sexual education in Sweden, the guiding principles of which are to develop personal knowledge of one's sexuality and to promote intimacy, gender equality, and sexual self-esteem (The Swedish National Agency for Education, 2019). With Sweden being a particularly gender-equal country, it could be expected that Swedish adolescents would be less likely to adhere to gendered norms and that the impact of these norms might be less pervasive in Swedish adolescent sexting.

General aims

One of the significant developmental tasks of adolescence is to establish the foundations of a healthy sexuality (Temple-Smith et al., 2016). Sexting can be seen as one sexual behavior among many and may play an important role in adolescent sexual exploration and expression. The sexual experiences the adolescent gains from sexting can be substantial components of the complex process of building a healthy sexuality. However, research on sexting as a sexual practice is mostly still in its infancy. Several gaps can now be identified, such as examining whom adolescents sext with, girls' and boys' experiences of sexting, how cultural norms of adolescent sexuality may affect both adolescents' sexting behaviors and experiences, and how considerations of body (i.e., body image) and self-objectification pertain to sexting.

The overarching aim of this thesis is to approach adolescents' experiences of sexting from a developmental-informed perspective, i.e., how sexting can be situated within adolescents' healthy sexual development. Focusing on several factors known to be important for adolescents' healthy sexual development, the studies forming the empirical basis of this thesis address the role of biological (i.e., puberty and gender), psychosocial (i.e., family and peers), psychological (i.e., body image), and contextual (i.e., social norms) factors in experiences of sexting. The point of departure for this thesis is that sexting can entail both opportunities and risks, so both positive and negative sexting experiences are considered. The more specific aims/research questions of the thesis are:

1. Is sexting influenced by developmentally important factors (e.g., puberty, gender, body image, family, and peers), and can these factors affect how adolescents experience sexting?
2. Does sexting differ depending on the circumstances of sexting, in terms of who the adolescent sexts with?
3. What are the social norms concerning adolescent sexting?

SUMMARY OF THE STUDIES

The three studies included in this thesis all originate from the first wave of an ongoing research project named OWN YOUR BODY, conducted at the University of Gothenburg, which focused on sexting among Swedish adolescents. The data collection for the first wave was performed from fall 2016 to spring 2017, while a second wave of data collection (data not used in this thesis) was performed from fall 2019 to winter 2020. The research project uses both quantitative and qualitative methods to gather data, and a survey study in ten schools served as the main data source for this thesis. These schools enrolled a total of 2289 students aged 12–16 years (Swedish grades 7–9). Schools were selected to represent different areas in terms of socio-economic status, educational level, and immigration background. These indicators were obtained from statistics provided by the Swedish National Agency for Education’s statistical tool SALSA (The Swedish National Agency for Education, 2018). In this thesis, data collected during the first wave of the project were used.

Of the 2289 enrolled students, 1653 (72.2%) adolescents participated at Wave 1 (831 boys, 822 girls). The mean age was 14.20 years ($SD = 0.92$), with ages ranging from 12 to 16 years. The most common reasons why students did not participate in the study were failure to obtain parental consent, not attending class on the day of data collection, and choosing not to participate. About 89% of the adolescents in the sample were born in a Nordic country, while about 9% were born outside Europe and 2.2% were born elsewhere in Europe (excluding Nordic countries). About 72% had at least one parent born in a Nordic country, about 18% had at least one parent born outside Europe, and 8% had at least one parent born elsewhere in Europe (excluding Nordic countries). A majority of the adolescents lived with both parents in the same household (65%), 18% alternated between parents, about 15% lived with one parent, and a small minority stated that they lived on their own (1%).

The questionnaire used for the studies covered four overarching domains: background of the participant (e.g., age, gender, family income, and parental education level), social media and Internet use (e.g., online habits, Internet rules at home, and online risk-taking), sexting, and aspects of body image. The questionnaire was completed in the classroom using laptops or mobile phones. At least one researcher was present during the data collection, to be available to answer questions and to ensure that each participant completed the questionnaire individually. Given the sensitive nature of some of the questions, boys and girls completed the questionnaire in different classrooms. When introducing the study and the questionnaire to the participants, the following

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definition of sexting was stated verbally: “Sexting is the sending and/or receiving of images or video clips that contain nudity or are sexual in nature, such as sending nude or semi-nude pictures/video clips, showing a body part, or doing a sexual act via webcam.” This definition was then repeated in written form in the questionnaire.

Study I

The main aim of Study I was to further scientific knowledge of adolescents’ sexting experiences, focusing on the prevalence of receiving and sending sexts, whom sexts are sent to and received from, and how adolescents perceive sexting (e.g., whether they feel pressured to sext and whether sexting was experienced as positive or negative). The potential relationships between these characteristics and development factors, including age, pubertal timing, family support, friend support, and online risk-taking, were also evaluated.

Method

In Study I, measures of age, gender, pubertal timing, and perceived support from family and friends were used. Pubertal timing was measured by asking participants how they perceived their development relative to their peers (i.e., early, average, or late). The measures of perceived support from family and friends were obtained from the Public Health Agency of Sweden’s (2014) public health report questionnaire for children and adolescents. Participants’ tendencies for online risk-taking were measured using a six-item set of questions previously used by Ybarra et al. (2007). For the sexting questions, the participants were asked how often they had received or sent sexts, and from and to whom (i.e., romantic partner, friends, online friend, and stranger). The participants were also asked to rate to what degree they thought their experiences of sexting were positive or negative, whether they had been asked to sext, and whether they had been pressured to sext. Significant differences in the prevalence rates of sexting between girls and boys in each age group (i.e., 7th, 8th, and 9th grades) were assessed using chi-square tests. Gender and age differences in feeling pressure to sext were assessed using chi-square tests, while the gender difference in the degree of positive or negative experiences of sexting was assessed using a *t*-test. The potential relationship between the developmental factors and likelihood of sexting was assessed using multiple logistic regressions (separately for girls and boys).

Results

The results of Study I indicated that sending sexts was more likely among the older age groups. Chi-square tests showed that girls were more likely to receive sexts from strangers than were boys, and they were more likely to receive sexts

from strangers than from any other sender. Boys were more likely to receive sexts from friends and peers and were more likely to send sexts to a romantic partner.

Boys were more likely than girls to ask for sexts from others, while girls were more likely than boys to be asked. Over a third of the girls and a tenth of the boys had felt pressured to send sexts. Girls also reported more negative experiences of sexting than boys did. However, it should be noted that a substantial share of the boys who had sent sexts also reported having had negative experiences.

Logistic regression showed that adolescents who were more likely to take risks online were also more likely to sext. This relationship between sexting and online risk-taking seemed to be strongest for those who had sent sexts to strangers. Additionally, a feeling of greater support from friends was related to increased likelihood of sexting among boys. Family support was also related to increased likelihood of sexting with friends among boys, and with online friends among girls. Both age and early pubertal timing predicted an increased likelihood of sexting with a romantic partner or friends for boys, and only in sending sexts to a romantic partner for girls.

In conclusion, Study I showed that sexting rates among adolescents are related to whom the sext is received from or sent to. Significant gender differences were identified in sexting experiences, which may relate to the gendered nature of sexting and, more broadly, to social norms concerning adolescent sexuality. The study also showed that online risk-taking, support from family and friends, age, and pubertal timing are all related to sending sexts, and that the strengths of these relationships vary depending on the gender of the sender and recipient of the sexts.

Study II

In the second study, the emphasis was on examining how sexual objectification and appearance concerns may affect adolescent sexting. More specifically, Study II investigated whether different body image-related variables, namely, body surveillance (i.e., the behavioral manifestation of self-objectification), the importance adolescents put on appearance for self-image and in social relationships (i.e., dysfunctional appearance beliefs), and body dissatisfaction, would predict sexting. A hypothesized model including these variables was tested. In this model, a similar distinction was made regarding whom the adolescent had sent sexts to. Given that sexual objectification and body dissatisfaction are more common among girls, the study investigated whether gender would moderate the hypothesized links in the model.

SUMMARY OF THE STUDIES

The following hypotheses were evaluated for this study:

1. There is a direct link between appearance esteem and engaging in sexting.
2. There is a direct link between dysfunctional appearance beliefs and engaging in sexting with a romantic partner versus a stranger.
3. There is a direct link between body surveillance and sexting with a romantic partner and a stranger.
4. Feelings of body shame mediate the relationship between self-objectification and sexting.

The strengths of the relationships between sexting with a romantic partner versus with a stranger were evaluated, as were the roles of gender and pubertal timing.

Method

For this study, 1563 participants (50.7% girls and 49.3% boys) from Wave 1 were included. These participants had provided answers regarding the body image measures and the key variables (i.e., sexting questions, gender, and pubertal timing). Their mean age was 14.19 years ($SD = 0.90$).

Several well-established scales that measure different aspects of body image were used for this study. First, two subscales (*Body surveillance* and *Body shame*) from the *Objectified Body Consciousness Scale* for preadolescent and adolescent youth (OBC-Y; Lindberg et al., 2006) were used in this study. The *Body surveillance* subscale measures the extent to which the participant focuses on appearance and monitors the body, which is thought to be a behavioral manifestation of sexual self-objectification. The *Body surveillance* subscale comprises four items, for example: “I often compare how I look with how other people look.” The *Body shame* subscale, which measures the extent to which the adolescent feels shame if his or her body does not conform to cultural expectations, comprises five items, for example: “I feel ashamed of myself when I haven’t made an effort to look my best.” Second, the importance adolescents put on appearance in social contexts (i.e., dysfunctional appearance beliefs) was measured using nine items from the *Beliefs about Appearance Scale* (BAAS; Spangler & Stice, 2001). Example items are: “The amount of influence I have on other people depends upon how I look” and “How I feel about myself is largely based on my appearance.” Third, the *Appearance* subscale of the *Body-Esteem Scale for Adolescents and Adults* (BESAA; Mendelson, Mendelson, & White, 2001) was used to measure adolescents’ general feelings about their appearance. Low scores on this subscale are an indication of body dissatisfaction. This subscale uses items such as: “There are lots of things I’d change about my looks if I could” and “I’m satisfied with how I look.”

The same measure of pubertal timing mentioned in Study I was used in the present study. Likewise, two of the sexting outcomes mentioned in Study I were used in this study. These items were sexting with a romantic partner and sexting with a stranger (i.e., how often the participant had sent sexts to a romantic partner, and how often they had sent sexts to a stranger).

With these measures, a hypothesized model, both exploratory and based on previous theory and findings, was constructed and tested using structural equation modeling (SEM). The body image measures were entered as latent variables, while pubertal timing and the sexting outcomes functioned as manifest variables. The direct path of each predictor was tested, while also testing whether the relationship between pubertal timing and sexting was mediated by body surveillance, dysfunctional appearance beliefs, and appearance esteem. In addition, body shame was tested as a mediator of the relationship between body surveillance and the two sexting outcomes (i.e., sending sexts to a romantic partner and to a stranger). The appropriateness of the hypothesized model was assessed by inspecting the goodness of fit of the model using a set of predetermined cut-off values for the fit indices. To determine whether the measurement model was invariant across gender, multiple group analyses were employed. Lastly, to formally determine the moderation effects of gender, structural invariance was assessed between girls and boys for each significant regression path from the predictor and mediator variables to the outcomes.

Results

Overall, the full model fit the data well, which was also the case when the model was tested separately for girls and boys. The multiple group analysis could also determine that the full model had the same structure for both boys and girls.

Figure 2 shows each significant path for girls and boys in the tested model. The study found that higher levels of dysfunctional appearance beliefs were related to an increased likelihood of sexting with a romantic partner or a stranger among both boys and girls. Higher levels of body surveillance were also related to an increased likelihood of sexting with strangers among boys. Neither appearance esteem nor body shame had a direct link to sexting with any partner. Earlier pubertal timing predicted sexting with a romantic partner and with a stranger. This relationship was not mediated by the effect of the body image measures, except among boys with earlier pubertal timing, who were more likely to sext with a romantic partner, mediated through the partial relationship of dysfunctional appearance beliefs.

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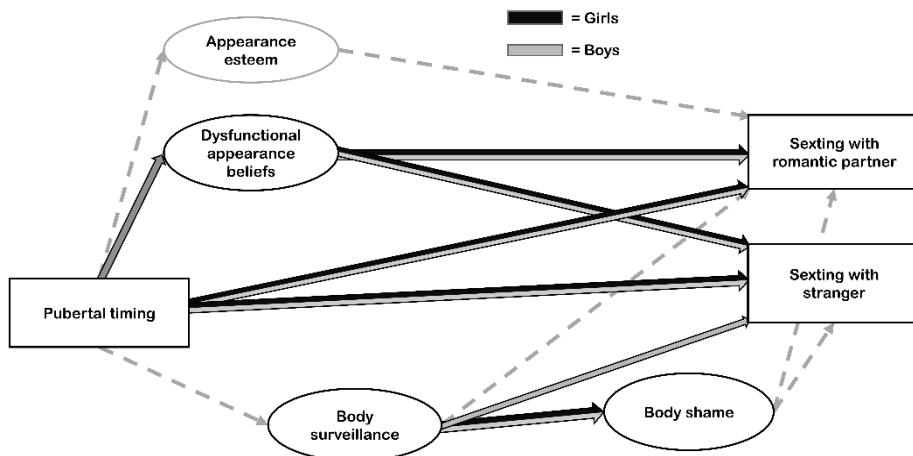


Figure 2. The tested structural equation model in Study II. Bold arrows represent significant paths, whereas dotted arrows represent non-significant paths.

Study III

Previous studies have indicated peer social norms to exert a strong influence on adolescent sexting, so Study III explored these norms, stressing the content of the injunctive norms that may operate within the peer group among Swedish adolescents. In more concrete terms, this study explored what adolescents believe their peers think about sexting, and whether girls and boys differ in these beliefs. The research questions in this study were: 1) What do adolescents believe their peers think about sexting?; and 2) Are there any gender differences in these beliefs?

Method

For this study, answers to an open-ended question included in the questionnaire at Wave 1 were used. The open-ended question was designed to capture adolescents' beliefs about what peers think about sexting, using the specific question: "What do people of your age think of sexting?" The following probing questions were used to stimulate the participants' written disclosure: "Do you think people of your own age think sexting is okay?"; "Is it more or less okay if a girl versus a boy sends sexts?"; "Is it more or less okay to sext depending on whom people sext with?"

In this study, 808 (61.3% girls, 38.6% boys) answers to the open-ended question were included. This number represented 60.2% of the number of participants who answered the open-ended question (1340). The main reasons for not including all statements were that they did not all include meaningful information (e.g., "I don't know"), and because the participants described only

their own views of sexting, which was not within the scope of this study.

To explore the content of the participants' answers, a conventional content analysis (Hsieh & Shannon, 2005) was conducted. The content of each statement was coded, and each code was organized into clusters based on conceptual relationships. These clusters were then named and combined into main categories and subcategories.

Results

The content analysis resulted in eight main categories: 1) Accepting view of sexting; 2) Non-accepting view of sexting; 3) Sexting is one's own choice and responsibility; 4) Sexting is gendered; 5) There are no differences for boys and girls who sext; 6) Sexting is a way to get attention; 7) Sexting is a means for pleasure or enjoyment; and 8) Other. Table 1 provides a synoptic description of each category.

The main findings of this study were that adolescents believed that peers generally held accepting views of sexting. However, the perceived acceptance of sexting was dependent on whether sexting was performed within a romantic relationship or with someone trusted. The adolescents also perceived that peers held disapproving views of sexting in the peer group. One of the main concerns among the peer group was that the risk that a sext would be spread to others was too great. The adolescents also perceived that sexting is rarely acceptable in the peer group if it occurs with someone not known beforehand. One major belief among the peer group, which girls were more likely to mention, was that sexting was a gendered phenomenon; they perceived that girls were unfairly treated for engaging in sexting and at greater risk of adverse consequences, while boys had more freedom to enjoy sexting. Finally, in the peer group, a common explanation for why adolescents engage in sexting was that they want to get attention from others, or simply because sexting was pleasurable and enjoyable.

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Table 1. *The categories and subcategories with brief descriptions from the content analysis in Study III*

| Categories and subcategories | Description | Gender | |
|--|---|--------------|--------------|
| | | Girls | Boys |
| 1: Accepting view of sexting | Sexting is viewed as an acceptable sexual practice for adolescents. | 39.9% | 55.8% |
| Sexting is acceptable (no further explanation) | Adolescents think sexting is acceptable, but they provide no reasons why they think so. | 17.5% | 30.8% |
| Sexting is acceptable within trusted relationships | Sexting is appropriate with someone known, trusted, and preferably of a similar age. | 18.5% | 16.0% |
| Sexting is acceptable when both have consented | Adolescents approve of sexting when both the sender and receiver have consented to sext. | 5.0% | 10.6% |
| 2: Non-accepting view of sexting | Adolescents do not view sexting as an accepted sexual practice. | 38.9% | 32.0% |
| Sexting is not acceptable (no further explanation) | Adolescents think that sexting is not acceptable, but they provide no reasons why they think so. | 24.0% | 24.4% |
| Sexting with a stranger is wrong | Sexting is something negative if the sexting partner is a stranger or someone older met only online. | 6.5% | 5.8% |
| Sexts can be spread to others | Sexting is viewed as a negative and risky activity given the risk of sexts being spread to others. | 7.9% | 3.2% |
| Teens are too young to sext | Sexting is inappropriate given their young age. | 2.0% | 2.2% |
| 3: Sexting is one's own choice and responsibility | It is individuals' own choice and responsibility when engaging in sexting. Others should not care about it. | 3.0% | 4.8% |
| 4: Sexting is gendered | Sexting is viewed as a gendered phenomenon that differs between boys and girls. | 44.0% | 11.9% |
| Sexual double standard | Girls' sexting is seen more negatively than boys' sexting, and girls face greater risk of being shamed for engaging in it than do boys. | 29.4% | 3.5% |
| Girls are more exposed to the risks of sexting | Girls are more likely than boys to experience the negative consequences of sexting. | 10.5% | 2.9% |
| Boys enjoy sexting more | Boys enjoy sexting more than girls do, brag about sexting to friends, and are more likely to ask for sexts. | 11.7% | 6.4% |
| 5: There are no differences for boys and girls | Sexting is viewed as a phenomenon that does not differ by the gender of the sexter. | 6.7% | 8.3% |
| 6: Sexting is a way to get attention | Sexting is used among adolescents to get attention or social approval from others. | 11.7% | 2.9% |
| 7: Sexting is a means of pleasure or enjoyment | Sexting is a way to attain sexual release, express sexual feelings, or become sexually aroused. | 3.6% | 7.4% |
| 8: Other | Various views on sexting that were not common enough to justify creating categories of their own. | 5.2% | 8.0% |

Note. Percentages in the "Gender" column represent the shares of the total number of girls or boys who mentioned the category. Bolded percentages represent significant differences.

GENERAL DISCUSSION

This thesis was about sexting among Swedish adolescents, and how sexting can fit within adolescent sexual development. In the three studies, several factors known to be important for adolescents' healthy sexual development were considered. More specifically, Study I explored sexting behaviors and experiences, and their potential relationships to age, pubertal timing, family support, friend support, and online risk-taking. Study II explored the possible relationship between pertinent body-image-related factors and sexting. Study III applied a qualitative approach to investigating adolescents' perceptions of the social norms that surround sexting. Taken together, the three studies included in this thesis make a unique contribution to the present state of knowledge by improving our understanding of how factors both within and around the adolescent interact with sexting experiences, and how this interaction may differ depending on the recipient of sexting.

Individual and social factors affecting adolescent sexting

Within the PPCT framework it is assumed that experiences and behavior occur in the proximal process (here, sexting) and that these experiences and behaviors are shaped by the *person* and *context* components (Bronfenbrenner, 2005). The three studies in this thesis investigated factors in two domains within the PPCT framework. These factors were found within the components *person*, in which individual factors are found, and *context*, which houses factors around the adolescent at different levels depending on the physical closeness these factors have to the individual (e.g., the micro- and macrosystem) (Bronfenbrenner, 2005).

Individual factors

Within the individual domain, the three studies examined the role of eight different factors in adolescent sexting: age, perceived pubertal timing, gender, online risk-taking, body image, self-objectification, and gender.

Age and puberty

Not surprisingly, the results of Study I indicate that the age of the adolescent matters for the likelihood of sexting. These findings are in line with those of other studies in the field (e.g., Madigan et al., 2018). Study III also shows that age is an important factor when adolescents elaborate on when sexting is approved within the peer group, with sexting seen as less acceptable for

GENERAL DISCUSSION

younger adolescents. This line of reasoning corresponds to empirical findings that some younger adolescents are at greater risk of, for instance, having their sexts spread to others (Englander & McCoy, 2017). Some adolescents' skepticism about young adolescents engaging in sexting may follow sexually restrictive social norms that sex should primarily be performed by older individuals (Gagnon & Simon, 2005). Consideration of the age appropriateness of sexting can be adaptive, as it may minimize the risk that sexually inexperienced adolescents will be hurt by sexting. These age considerations may, however, restrict some adolescents from exploring their sexuality, and may not reflect the actual psychological and emotional maturity that the adolescents feel.

As previously mentioned, the role of puberty should be a factor affecting sexting, given the strong relationship between puberty and adolescent sexuality (Alsaker & Flammer, 2020). In Study I, perceived pubertal timing predicted sexting with a romantic partner, albeit more weakly than did the adolescent's age. It was expected that pubertal timing would predict sexting with a romantic partner, given that it is related to increased sex drive and increased sexual attention from peers and schoolmates (Temple-Smith et al., 2016). However, it was unexpected that neither age nor pubertal timing predicted sexting with people not known offline, such as online friends and strangers. This may show that sexting with a romantic partner or friend follows a more normative pattern of sexual exploration (Albury & Crawford, 2012; Burkett, 2015; Drouin et al., 2013; Döring, 2014; Van Ouytsel, Walrave & Ponnet, 2018), but that other factors may be in play in sexting with strangers.

Online risk-taking

In Study I, one of the strongest relationships with sexting was that with online risk-taking, and this relationship was especially strong for girls. Adolescent risk-taking is related to several factors, such as parents, education, peers, and the media (Jessor et al., 1998). A propensity for risk-taking online may also indicate that, in the decision-making process, the individual sees more opportunities than risks of harm from sexting (Boyer, 2006). In this assessment of the opportunities versus the risks, individuals may also rely on norms operative in the peer context to inform their decision making. Indeed, in Study III, one peer perception was that sexting was only accepted with someone trusted and that girls were more likely to be harmed by sexting than were boys. Thus, sexting may, in some cases, be seen as a risky behavior within the peer group. This may explain why sexting was related to increased online risk-taking among girls, given that the risks are perceived as greater for them. However, to better understand this relationship, it would be of interest to examine what risks the adolescents actually perceive when sexting, and whether these perceived risks differ in adolescents who are less inclined to take

risks online. It would also be of interest to align the perceived risks of sexting with how the adolescents' social surroundings (e.g., parents and school) and society perceive sexting, in order to gain insights into how adolescents' perceptions of the risks of sexting are affected by their social context (De Ridder, 2019). What should also be investigated is the possibility that engaging in sexting itself may affect how some adolescents perceive online risks. Indeed, the experiences adolescents gain from engaging in sexting are likely to be used by the adolescents as reference points when they perceive risks of sexting in the future. For example, if an adolescent had a negative experience of sexting, the adolescent will likely give greater weight to negative information when deciding to engage in sexting the next time.

Body image

Another developmentally important factor examined in Study II of this thesis was body image and its possible relationship to adolescents' sexting. This study showed that dysfunctional appearance beliefs were related to sexting with both known and unknown others. This finding may support other studies showing that some adolescents may be motivated to sext in order to gain affirmation or feedback from others (Morelli et al., 2016). Similarly, in Study III, one peer perception was that some adolescents only sext to gain attention or approval from others. Hypothetically, Study II indicates that some adolescents with dysfunctional appearance beliefs may be more prone to sext given the perceived social expectations in a sexting situation. Indeed, previous studies have shown that one motive for sexting is fear of disapproval from a romantic partner if one does not engage in sexting (Lenhart, 2009; Lippman & Campbell, 2014). It has also been found that many adolescents, especially girls, feel pressure to engage in sexting (Englander, 2012; Reed et al., 2020; Van Ouytsel, Walrave & Ponnet, 2019b). Thus, for adolescents with dysfunctional appearance beliefs, these social expectations and felt pressure might make them more likely to give in to the pressure and be more likely to sext. Interestingly, Study II also showed that dysfunctional appearance beliefs were related to sexting with either a romantic partner or a stranger. This, in turn, may indicate that if dysfunctional appearance beliefs become activated, some adolescents may become more likely to sext regardless of the circumstances. However, it is also possible that sexting itself can fuel and reinforce dysfunctional appearance beliefs among some adolescents, given that the feedback received confirms the belief that one's appearance was important in that situation. A bidirectional relationship between dysfunctional beliefs about appearance and sexting might therefore be expected.

Study II indicated that body dissatisfaction was not related to sexting. At this point, it is premature to rule out the potential role of body dissatisfaction in adolescent sexting, given that similar studies have identified relationships

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between sexting and different aspects of body image (e.g., Bianchi et al., 2017; Howard et al., 2019). However, the relationship between body dissatisfaction and sexting may be situationally dependent. Indeed, a recent study (albeit of adult women) by Howard et al. (2019) found that higher state body dissatisfaction, which is a momentary and situationally dependent experience of body dissatisfaction (Cash et al., 2002), is related to a decreased likelihood of engaging in sexting (Howard et al., 2019). The relationship between state body dissatisfaction and sexting may indicate that in certain situations when individuals feel less secure about their bodies, they may be less inclined to sext. Identifying situations that may increase state body dissatisfaction and how it may relate to adolescent sexting could be the next step in future research.

The role of social factors in adolescents' sexting

The three studies included in this thesis also investigated social factors that can be found in the microsystem surrounding the adolescents. These factors were support from parents and peers, and peer norms.

Parental influence

In Study I, boys who felt less family support were also more likely to sext with friends, but in girls, this relationship was only found in the case of online friends. These results may indicate that the quality of the parent–child relationship is related to sexting. Indeed, in some cases, supportive parents can provide active guidance on sexual issues and bolster some adolescents' self-esteem, which may help them to practice safe sex (Davis & Friel, 2001; de Graaf et al., 2011). Furthermore, studies have also shown that parents play an important part in shaping some adolescents' online sexual activities; for example, the attitudes of parents can affect their children's attitude toward online sexual activities (Sorbring et al., 2015). Thus, Study I could support the possible important role that parents have in adolescents' online sexual activities, which recent studies also have shown (e.g. Confalonieri et al., 2020; Dolev-Cohen & Ricon, 2020).

However, the relationship found in Study I between parental support and adolescent sexting was weak and inconsistent, given that no relationships were found for sexting with strangers or “safer” forms of sexting, such as sexting with a romantic partner. For boys, less family support was also related to an increased likelihood of sexting with friends. It is possible that this relationship could not be discerned when the other factors were included in the model, such as online risk-taking and friend support.

These weak and inconsistent findings might, in retrospect, have been expected. Indeed, parents' role in adolescent sexual behaviors may be limited by the boundaries on what adolescents actually disclose to parents. In the effort to gain autonomy from parents, some adolescents may see their own sexuality

as one of the personal domains over which they want to have greater personal control, without insights from parents (Rosenthal & Feldman, 1999). This may make adolescents unwilling to disclose information about their sexual lives to their parents, even though they may feel support from their parents, which limits parents' knowledge of and possible influence on their children's sexuality (Jaccard et al., 2002). In the case of sexting, some adolescents may even be more unwilling to share information about their sexual lives online, since they may perceive parents as unknowledgeable about digital technology and fear that their parents will misinterpret and "over-react."

Regardless, it is still possible to surmise that parents might still have a major role in influencing adolescent sexting (Vanwesenbeeck et al., 2018). Study I only considered one specific aspect of possible familial influence, but other parenting aspects may also affect sexting, such as parenting styles (Vanwesenbeeck et al., 2018). Furthermore, given that the studies in this thesis did not account for the active role adolescents have in shaping the parent-child relationship (Collins & Laursen, 2004; Wills & Dishion, 2004), further studies of parents' influence on adolescent sexting could benefit from also considering the dynamic and bidirectional interaction between adolescents and parents (Pettit & Arsiwalla, 2008). Here, longitudinal methods may be beneficial, as they make it possible to follow how the dyadic relationships between adolescents and their parents co-evolve over time with adolescents' sexting behaviors.

Peer influence

Somewhat surprisingly, Study I found that adolescent boys, but not girls, who feel supported by their friends were also more likely to engage in sexting. One possible explanation for this relationship is that boys who feel support from friends may also have more contact with friends. In this contact, friends may bolster boys' social self-esteem, making it easier for them to make contact with others. Friends may also transmit and reinforce masculinity norms (Kågesten et al., 2016), which may make some boys feel bolstered to engage in sexual activities, which could predict a higher likelihood of engaging in sexting (Lippman & Campbell, 2014; Ringrose et al., 2013). Study III may also explain this result, as it was clear that boys' peer groups perceived sexting as a much less troublesome activity for boys. More specifically, boys' sexting was perceived as a less risky activity than girls' sexting, and boys generally perceived sexting as a more acceptable activity in the peer group than did girls. Thus, boys who receive more support from peers may have fewer social barriers to engaging in sexting than do girls.

Study III examined the social norms operative in the peer group, finding that several unwritten rules were set for adolescents governing when and whether sexting would be an accepted sexual activity. Potentially, many of

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these unwritten rules seemed to be shaped by an overall skeptical view of adolescent sexuality, in which adolescents' engagement in sexual activities is perceived from a risk perspective (De Ridder, 2019; McGovern & Lee, 2018). As was indicated in Study III, the peer group also seemed to transmit and reinforce sexual double standards concerning adolescent sexuality, applying them to sexting as well (which will be discussed in more detail in later sections) (Crawford & Popp, 2003). Peers may thus play a potent role in transmitting gender role norms in relation to sexting. According to Gagnon and Simon (2005), the peer group is the primary force transmitting sexual scripts to adolescents. The peer group is also effective in sanctioning violations of shared norms (Petersen & Hyde, 2011). For instance, in Study III, the adolescents mentioned that girls who sexted risked being called "sluts" for engaging in sexting, which serves as an effective sanction against girls who engage in sexual behaviors (Petersen & Hyde, 2011).

However, as with parental influence, it should be noted that the influence of peers may not be uniform. Some peer groups likely uphold different norms concerning sexting, which neither this study nor the thesis accounted for. As adolescents tend to select friends and belong to peer groups similar to themselves, the composition of peer groups tends to be homogeneous in several respects, such as academic achievement, behavior, and norms (Cohen, 1977; Damico, 1975; Simons-Morton & Farhat, 2010). Furthermore, in some peer groups it is also possible that some members, such as "popular" group members, may have more influence than others in setting the norms (Brown, 2011; Maheux et al., 2020). Thus, a way forward would be to investigate the peer norms in different peer groups that are distinguished not only by gender, but also by popularity status, ethnicity, or socioeconomic background.

The role of the sexting partner in adolescent sexting

A second aim of the thesis was to investigate specific circumstances of sexting, in particular, whom adolescents sext with, and whether different factors would be related to sexting with different sexting partners. Study I showed that the studied adolescents mainly sexted within a romantic relationship or with friends and peers, which mirrors findings of previous studies (Cooper et al., 2016; Lenhart, 2009). It was, however, not uncommon for adolescents to sext with people met only online, or with people completely unknown to them, and about 8% of girls and boys reported that they had sexted with a stranger. Study II also found that sexual self-objectification among boys was related to an increased likelihood of sexting with strangers, but not with romantic partners. Factors such as age, pubertal timing, online risk-taking, and social support were also related to whom the adolescents sext with. For example, age was

related to sexting with romantic partners and friends, but not to sexting with online friends and strangers. In Study III, it was also evident that whom the adolescents sext with may determine the acceptability of the behavior in the peer group.

Neither Study II nor III, however, examined whether the quality of sexting experiences differs depending on whom the adolescent sexts with, so it is difficult to determine how different sexting partners may affect adolescents' sexting experiences. Based on findings of other studies, however, it is possible to believe that sexting with a romantic partner may be more likely to be followed by positive experiences (Cooper et al., 2016; Lee et al., 2015; Lenhart, 2009) than is sexting with strangers (e.g., Dowdell et al., 2011; Gámez-Gaudix et al., 2015; Williams et al., 2013). In Study III, the peer group also considered sexting more acceptable if it was performed within a romantic relationship or with someone trusted, sexting with strangers being assumed to be unsafe. Given the distressing nature of being unwantedly solicited for sexts and or exposed to sexual abuse, which sexting with strangers may facilitate (Mitchell et al., 2014), the adolescents in Study III did voice a legitimate concern.

However, it may not be prudent to assume that sexting with strangers is automatically followed by negative sexting experiences. Indeed, studies have shown that someone known to the adolescent is the most likely person to harm the adolescent through sexting (which in and of itself is quite rare), for example, by spreading the sext to others (Van Ouytsel et al., 2014). Furthermore, the studies in this thesis did not define who the stranger is. Adolescents meet strangers online almost every day on different platforms, for example, when gaming or on Instagram. It may thus not be prudent to regard sexting with strangers as a purely risky behavior (Davidson & Martelozzo, 2005; Dedkova, 2015). Indeed, it may be possible to draw parallels to the issue of "stranger danger," in which an unnamed stranger is stereotypically seen as the chief person who sexually abuses children (Stokes, 2009). The most serious problem with this focus is that it may hide the fact that the sexual abuse of an adolescent is more likely to be committed by people close to the adolescent, for example, a romantic partner, family member, or school friend (Kitzinger, 2002). It should thus be noted that sexting with strangers may not be an inherently risky behavior. Indeed, such a view would risk hiding the possible benefits some adolescents may feel that they gain from interacting online with people not previously met. For instance, sexual minority groups such as LGBTQ adolescents, who may have a hard time exploring their sexuality in their offline environment, may perceive that finding new contacts online opens up new sexual opportunities (Craig & McInroy, 2014).

Social norms and sexting

A consistent finding across the three studies in this thesis was that some girls and boys tended to experience sexting differently. In Study I, the gender differences found consistently indicated that some girls were at a disadvantage when sexting. For instance, the only gender difference in prevalence rates of receiving sexts was that girls were more likely to receive sexts from strangers than were boys. Although this was not investigated in the studies in this thesis, this may be an indication that some girls are more likely to be bothered by receiving unwanted sexts from people they do not know (Klettke et al., 2019). Hypothetically, some girls who received sexts from strangers may have received “dick pics,” that is, pictures of the male genitalia sent with abusive intent to girls (Henry & Powell, 2015; Mandau, 2020). However, Study I did not elaborate on whether the sexts received by girls solely constituted dick pics. Dick pics are not just sent by strangers, but may also be sent by people closer to adolescents, such as friends or a romantic partner (Mandau, 2020). Nevertheless, in future studies, it would be important to explore what kinds of sexts adolescents receive, whether they are forms of abuse or part of mutual sexual interaction.

Referring back to sexual double standards, the findings of the studies may also reflect the unequal playing field that some girls experience when engaging in sexual activities (Crawford & Popp, 2003; Lenhart, 2009; Lippman & Campbell, 2014; Ricciardelli & Adorjan, 2019; Ringrose et al., 2013). A factor that may intensify sexual double standards in sexting is that the public considers sexting a risky behavior for adolescents (Lounsbury et al., 2011). Given that girls are expected to take most sexual responsibility, some girls will be personally blamed and sanctioned for being irrational, risk seeking, and not taking responsibility (Dobson, 2019; Lippman & Campbell, 2014; Ringrose et al., 2013). It is also possible that the sexual objectification of girls intensifies the potential effect of sexual double standards in sexting. Indeed, it may be more likely that others see girls’ sexting as an objectifying practice (Jewell & Brown, 2013), while boys’ sexting may instead be seen as an expression of masculinity or sexual curiosity (Ricciardelli & Adorjan, 2019). Thus, the blame on girls becomes two-fold, as some girls are blamed for both engaging in sexual activities and for turning themselves into sexual objects by engaging in sexting.

It is no wonder then that girls are likely to view sexting with more skepticism than do boys (Gewirtz-Meydan et al., 2018; Rodríguez-Castro et al., 2017). In Study III, it was also evident that the studied adolescents (primarily girls) were mindful of the gendered view of sexting in their peer group, for example, girls being shamed for engaging in sexting while boys receive praise. It is possible that the gendered sexual scripts mentioned by Gagnon and Simon (2005) are similar to the sexual script for sexting in the

peer group (Symons et al., 2018). Previous research supports the existence of such a gender script in sexting, and has shown that boys are more likely to ask for sexts, while girls may be more likely than boys to send sexts at the behest of someone else (Lippman & Campbell, 2014; Symons et al., 2018; Thomas, 2018; Van Ouytsel, Van Gool et al., 2017).

It is also worth noting that the sexual double standards seemed to be strong among the Swedish adolescents who took part in Study III. As mentioned in the Introduction, Sweden has been named one of the most gender-equal countries in the world, with a liberal view of both girls' and boys' sexual expression (European Institute for Gender Equality, 2019; Johansson, 2016). Why this was not reflected in the studies may be an indication that Sweden's being a gender-equal country is not the same as saying that Swedish girls and boys are equal. Indeed, Swedish women and girls are more likely than men and boys to receive sexually harassing comments (Public Health Agency of Sweden, 2019), and also more likely to be sexually abused (Swedish National Council for Crime Prevention, 2018). The norms operative around sexting may also not be country specific, but rather be influenced by globalized culture (Attwood, 2009; Mesch, 2009). As both women and men are more likely to be sexually objectified in international media, through pornography, and on various Internet platforms (Symons et al., 2018), Swedish adolescents may very well be affected by these messages despite the norms of Swedish society.

Although differences between girls and boys were observed in the studies of this thesis, there were several similarities across the genders. For example, similar prevalence rates of sexting were found in Study I, and both the girls and boys in the studies were equally likely to believe that their peers perceived sexting as an acceptable behavior if it occurred within a trusting relationship in Study III. With this in mind, it should not be assumed that girls and boys engage in sexting for different reasons, and gender alone may not provide a full explanation of why girls and boys have different experiences of sexting. Furthermore, although the girls in Study I were more likely to be pressured to sext, it was evident that the boys, too, were pressured to sext. In Study I, many boys (21%) also reported having negative experiences of sexting. These findings indicate that boys' negative experiences of sexting should not be discounted by assuming that boys have only positive experiences of sexting. Indeed, if one focuses solely on girls, their negative experiences may unintentionally fuel gendered stereotypes in which the sexual agency of girls is minimized, and boys' sexual behavior becomes vilified (Albury & Crawford, 2012; Ringrose et al., 2012; Salter et al., 2013). Thus, when considering the negative consequences of sexting, both girls' and boys' experiences need to receive equal attention, a standpoint that adolescents themselves support (Barrense-Dias et al., 2020).

What was also not considered in the studies was how the gendered peer norms might be perceived by LGBTQ adolescents. The results of Study III

imply that the peer norms perceived by the adolescents were anchored in a heterosexual frame of reference. Indeed, the gender-stereotypical norm implied a non-LGBTQ sexual exchange between a boy and a girl. How a heteronormative discourse surrounding sexting may affect some LGBTQ adolescents' views is less understood. More research may be needed that also considers the views of online sexual behavior among sexual minority groups. Indeed, previous research has indicated important differences. In a US study, adolescents who identified their sexuality as "other" than heterosexual were more likely to perceive that sexting would get them into trouble in school (Gewirtz-Meydan et al., 2018). In a US study with an adult sample, sexting was also seen as a more acceptable behavior in same-sex relationships than in non-same-sex relationships (Hartlein et al., 2015).

Sexting and healthy sexual development

One remaining question concerns whether sexting may have an impact on adolescents' sexual health and development. It was previously stated that four components were necessary for healthy adolescent sexual development: feeling comfortable with the body, acceptance of sexual urges, sexual agency, and practicing safe sex (Brooks-Gunn & Paikoff, 1993). The studies in this thesis can indicate how sexting may relate to some of these components.

In Study I, a large proportion of adolescents indicated that they had positive experiences of sexting. In Study III, participants emphasized that sexting was viewed as both an acceptable and unacceptable practice in their peer group. A main theme in Study III was that sexting could be used for pleasure and enjoyment, indicating that adolescents themselves may see the benefits of sexting. Other studies have also shown that it is more likely that adolescents will report positive reasons for engaging in sexting than negative reasons for not doing so (Reed et al., 2020). A recent study also found that adolescents more frequently reported positive outcomes of sexting, such as heightened self-confidence, positive self-image, and strengthened romantic relationships, than negative outcomes (Englander, Milosevic, & Staksrud, 2019, cited by Englander, 2019). A sizeable share of the adolescents who engage in sexting may thus have positive or benign experiences of sexting, which may facilitate healthy sexual development.

However, the studies in this thesis also showed that sexting might be related to negative experiences. Studies I and III indicated that negative experiences of sexting seem more common among girls, so it may be expected that girls are more likely to experience adverse effects of sexting on their sexual health. Findings of other studies also indicate that girls are more likely to be subject to pressure to engage in sexting, being coerced, and to experience negative emotions from engaging in sexting (Cooper et al., 2016; Drouin et al., 2015;

Englander, 2015; Reed et al., 2020; Van Ouytsel et al., 2019b). However, gender may not be the sole reason why some adolescents are more likely to have negative experiences of sexting. Instead, factors such as being younger, having a less secure home environment, being part of a sexual minority, and having psychological difficulties also predict adverse experiences of sexting (Englander & McCoy, 2017; Mitchell, 2010; Mori et al., 2019; Van Ouytsel et al., 2019b). This is in line with the previously mentioned general observation concerning adolescents' use of digital technology, namely, that adolescents who are more vulnerable offline are also more vulnerable online (Livingstone & Bulger, 2014). Still, it may not be prudent to regard sexting as a risk behavior for vulnerable groups. Instead, sexting may only be a facilitator of the negative sexual experiences that vulnerable groups are more likely to experience in any online setting.

Although sexting may not be synonymous with adverse consequences, the studies in this thesis indicate that not all adolescents who engage in sexting experience sexual agency, i.e., feeling that sexting occurs for their own sake and feeling in control of the sexting situation. The sexual agency of adolescents who sext is compromised because of the gendered norms that were salient in the studies of this thesis. This is unfortunate given the essential role sexual agency plays in healthy sexual development (Brooks-Gunn & Paikoff, 1993). One explanation for why sexual agency may be compromised by sexting is that sexting could be an objectifying behavior (Jewell & Brown, 2013; Liong & Cheng, 2018; Ringrose et al., 2012; Speno & Aubrey, 2019). Both the sender and receiver of the sext may displace the person from the sext, which becomes a sexual object that can be used for sexual gratification. If sexts are viewed as sexual objects, adolescents may feel both internal and external pressure to sext in order to satisfy others' desires, depriving them of sexual agency. However, Study II could only establish a weak link between body surveillance (i.e., the behavioral manifestation of self-objectification) and sexting, and only for boys who send sexts to strangers. Thus, based on these findings, it is unclear whether self-objectification affects adolescent sexting, and whether it restricts adolescent sexual agency.

A recent study did, however, show that sexting could be seen both as an objectifying behavior and as an empowering behavior for adolescents, through which the adolescents feel they can take control of their sexual expression (Liong & Cheng, 2019). Adhering to gendered sexual norms may in some cases actually indicate sexual agency. Indeed, girls who engage in sexting at the behest of a partner, or to satisfy another person's desire, may perceive themselves as in control of the sexual situation through controlling the flow of information (i.e., the sexts) (Ringrose et al., 2013). It can be argued that whether sexting restricts or promotes sexual agency hinges on the adolescent's own subjective experience when engaging in sexting. Referring back to the discussion in the previous section, one should also be mindful of how LGBTQ

adolescents experience sexual agency in sexting. Given that norms surrounding sexting are heteronormative and gender stereotyped (Ricciardelli & Adorjan, 2019; Ringrose & Harvey, 2015; Setty, 2018; 2019), LGBTQ adolescents' sexual agency is likely restricted because their engagement may not conform to the norms of how and by whom sexting should be engaged in.

Fitting sexting in a developmental framework

As argued before, it is possible that sexting plays a role in the sexual exploration and sexual expression that are important during adolescence. Sexting may also affect adolescents' overall sexual development, which could depend on their experience of sexting. Whether an adolescent engages in sexting for sexual exploration or expression purposes also seems to be dependent on several factors found within and outside the adolescent, as indicated by the three studies in this thesis. To put all this together, the theoretical framework chosen for this thesis was Bronfenbrenner's (2005) PPCT model. In the Introduction, a model (Figure 1) was suggested to fit adolescent sexual development within this framework. Based on the findings of the three studies, it may now be possible to modify that initial model and specifically place sexting within a sexual developmental framework. This modified model is found in Figure 3.

The model in Figure 3 is not comprehensive and only includes the factors considered in the three studies in this thesis. The component *time* is also not formally considered, as well as factors in the *exosystem* (e.g., media effects). However, what can be extracted from the model in Figure 3 is an illustration of how different factors may affect adolescent sexting, and how sexting may affect and be affected by the adolescents' sexual development. The three studies in this thesis have shown that individual factors (e.g., age, pubertal timing, gender, online risk-taking, and body image) may affect sexting, and also that these effects depend on interaction with the social context (e.g., parental and friend support, and peer social norms). The interaction between the individual factors and the social context will then affect the likelihood that the adolescent will engage in sexting, and also whom the adolescent may sext with in the proximal process (i.e., the sexting situation). The experiences that the adolescent then gains from engaging in sexting (positive/indifferent vs. negative) may affect overall sexual development, for example, gaining knowledge of one's sexual desires, needs, and preferences and forming expectations regarding future sexting or sexual behaviors. Although the experiences of sexting are presented in the model as either positive/indifferent or negative, it may be left open that a single sexting experience could be both, or be situated on a continuum ranging from positive to negative.

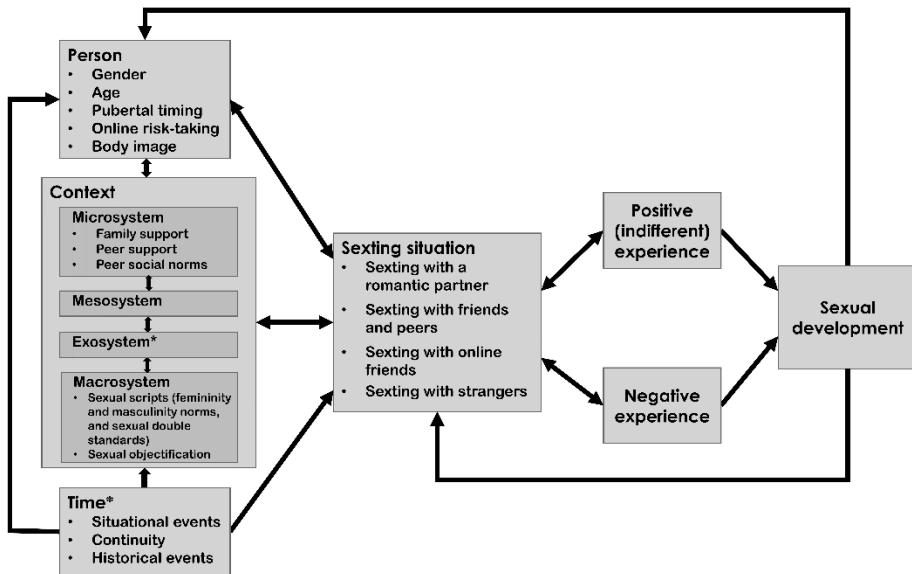


Figure 3. Hypothetical model of sexting in a developmental framework based on the findings of the three studies in this thesis.

* Not formally tested in this thesis.

However, for the model to be complete, the *time* factor needs to be incorporated, for example, whether sexting occurs multiple times over an extended period (Tudge et al., 2009). Furthermore, the *exosystem*, such as media influence or laws on sexting, should also be considered. In any case, the suggested model of sexting in the PPCT framework of sexual development provides an overview of how sexting can be understood during adolescence, how different factors within and outside the adolescent may affect sexting, how these may interact in different sexting situations (e.g., whom the adolescent sexts with), and how the experiences of sexting can influence adolescent sexual development. What also needs to be considered is the sexual development of the individual, and how it may interact with sexting. As shown in Studies I and II, sexting becomes more likely with age, suggesting the relevance of considering sexual maturity in adolescent sexting. In addition, as the adolescent becomes more sexually experienced, the propensity for sexting behaviors may change. For example, negative experiences of sexual encounters may restrain adolescents from engaging in sexting, while positive experiences of sexting may increase the likelihood. Furthermore, as was a main point of Bronfenbrenner (2005), the active and unique interaction between the individual and the vast array of factors described in the PPCT model also needs to be considered. Here, each adolescent's sexting behaviors and experiences

should be considered highly personalized, and each adolescent's subjective experience of sexting should be emphasized.

Methodological considerations

Several methodological considerations related to this thesis and the three included empirical studies need to be discussed.

The most salient methodological consideration across the three studies concerns the reliance on cross-sectional data. All studies derived from the same data collection, which was conducted from late 2016 to early 2017. The main potential problem with cross-sectional designs is that they preclude the interpretation of causality and how the pattern of results will evolve. In Study I, for instance, the relationship between online risk-taking and sexting may very well be bi-directional, with sexting possibly also affecting online risk-taking. Similar considerations may also apply to Study II. In this study, it was assumed that body image would predict sexting. However, it is equally likely to assume that sexting may affect adolescents' body image, as sexting is often followed by receiving judgments and comments, which would suggest a bi-directional relationship. Despite these concerns, it is still important to acknowledge the studies' unique and informative contributions. Some of the directions of results are logical, such as pubertal timing, parent and peer influence, and even online risk-taking being predictors of adolescent sexting. In Study II, the hypothesized directions were also based on theory and previous empirical findings.

Another limitation was that, in the three studies, it was assumed that the participants' engagement in sexting reflected the participants' sexual expression and intent. However, it is possible to assume that this was not the case for all participants. For example, some adolescents may have only engaged in sexting because their partner asked for it, and in some cases, adolescents in the study may have sent revealing pictures without perceiving them as sexual. Thus, some adolescents in the studies may not have had sexual intent. Before the adolescents completed the questionnaire, they were informed that the sending of nude or semi-nude pictures and video clips needed to be "sexual" in nature for it to be called sexting. However, this could only ensure that the sexting had sexual content, but could not ensure that the sexting had sexual *intent*. This limitation should be kept in mind when interpreting the findings of the three studies in this thesis. It should, however, be noted that the reason why sexting was defined broadly to the adolescents was to capture what the adolescent themselves would consider sexual or not. This was seen as a benefit over other studies that ask about specific sexting behaviors, such as whether a picture did or did not contain nudity, given that some adolescents may consider sending pictures of oneself in underwear as sexual.

A limitation of both Studies I and II was that the coefficient of determination (R-square) for the outcome variable (sexting) was low in most cases. For instance, in Study II the highest R-square value was .18, which indicates that the variance in outcome measures can be explained by several other factors not considered in the studies. However, this was expected given that several possible factors found within and around adolescents that may be relevant were not considered in the studies, factors such as media effects and peer pressure (Cooper et al., 2016). Sexting is unlikely to be fully understood based on single studies. Instead, the accumulated knowledge derived from various studies should be collected and discussed in literature reviews or synthesized in meta-analyses to gain an overall understanding.

Despite the large sample size for the three studies, it should also be acknowledged that the sample may not be fully representative of adolescents in general. First, the participating schools were not randomly selected; instead, schools were recruited based on their willingness to participate in the research project. Given that this limitation was identified early on, an effort was made to primarily contact schools with student compositions comparable to national averages in terms of social background and academic scores. Descriptive statistics did indicate that this effort was relatively successful. The social background of the sample seemed to correspond to what is expected of the age group in Sweden based on national statistics in terms of socioeconomic background, immigration background, and parental educational level (The Swedish National Agency for Education, 2020). However, even though the sample was representative of Swedish adolescents, it may not reflect adolescents in general and in other countries. As mentioned before, the Swedish cultural context is distinct from that of other countries in many ways, and especially concerning sexual issues (Lottes & Alkula, 2011). Thus, the results of this thesis should be interpreted against a Swedish backdrop.

For Study III some specific concerns also need to be mentioned. First, girls were more likely to answer the open-ended question than were boys, which means that the identified categories largely mirrored what girls perceived in their peer group. However, a substantial share of boys did answer the open-ended question, and the categories were not constructed based on the frequency with which they were mentioned. Second, many of the answers to the open-ended question followed the probe questions, indicating that the probes influenced the categories. Hypothetically, if the probes were omitted, the answers would have been different. Omitting the probes could, however, have entailed the risk of yielding less-rich data, given the age of the participants. In any case, the results of Study III should be interpreted with these limitations in mind.

Ethical considerations

The research project that included the three studies was approved by the Regional Ethics Board in Gothenburg. This approval covered the procedure for data collection, the contents of the questionnaire, and how the data and personal information were handled and disseminated. Central points in the application concerned confidentiality, privacy when answering questions, personal and parental consent, and questions asked about the sensitive topics raised. The research was conducted in full accordance with the Swedish Ethical Review Act (SFS2003:460) and the General Data Protection Regulation (2016/679). Despite this, there remain ethical issues concerning the research conducted within this thesis that deserve further discussion.

Although several steps were taken to ensure a minimal amount of harm for the participants, there may have been instances or situations in the procedure that could have negatively affected the adolescents who participated in the study. Indeed, several questions in the questionnaire asked about sensitive matters in the adolescents' personal life, such as engaging in online sexual behavior, parental support, and family income. Some may have felt uncomfortable in answering those questions but perceived that they had to answer given that they had already consented to participate. However, it was emphasized to the adolescents that they should only answer questions they were comfortable with and that they could abort their participation at any point. Nevertheless, aborting the participation may not have been easy since the data collection was performed during school time and with their teachers present. Under these circumstances, the adolescents may have felt obliged to complete the task that was given to them (Alderson & Morrow, 2011). It is difficult to say whether this was an acute risk of harm in this study. However, the end of the questionnaire asked the adolescents how they felt about completing the questionnaire. A majority thought the questions were relevant and not sensitive. The adolescents were also asked in which context they would have preferred to complete the questionnaire (i.e., at home or school), and a sizeable majority indicated that they did not care.

Another ethical issue concerns the parental consent to conduct the study required by Swedish law (SFS2003:460). More specifically, this law requires that the researchers first get consent from the parents of adolescents under 15 years of age to ask the adolescents in person whether they want to participate in the study. Two problems may arise from this. First, adolescents with parents who have consented may have felt an underlying pressure to participate against their own will, or even felt overt pressure from parents who wanted their children to participate (Mahon et al., 1996). With this concern in mind, it was made clear before the data collection that the choice to participate in the study was the adolescent's own. Second, in some cases, parents' choices may have deprived the adolescents of their right to make their own decisions concerning

being part of the study (Alderson & Morrow, 2011). The law of parental consent is intended to guarantee the welfare of the adolescent, which parents may very well be best at doing at adolescent ages (Knight et al., 2004). Sometimes, the parents' choices risk overriding their children's choices. However, this may be a lesser evil than an adolescent under 15 years of age agreeing to take part without fully understanding what participation in the research project entails.

Another ethical issue for the data gathering sessions was that boys and girls were separated in each session. Girls and boys were kept separated to ensure that the participants were able to complete the questionnaire privately and to minimize the risk that some adolescents might feel uncomfortable answering questions about sex with opposite-sex classmates present. The separation of girls and boys may, however, have maintained gendered lines and highlighted for the adolescents that boys' and girls' sexuality should be treated differently. It can be argued that other strategies could have been used, such as having smaller groups of adolescents in which it would have been easier to ensure calm and privacy. Such strategies would, however, be more labor intensive and logistically difficult, given that the schools were involved in planning the time for the data gathering sessions. Thus, the risk of maintaining gendered lines was seen as the least problematic option.

Theoretical considerations and future directions

Besides the future directions already mentioned in the Discussion section, the findings of the three studies in this thesis and experiences derived from investigating sexting have raised several questions and issues that this author believes may have potential to advance the sexting field.

One first suggestion regards the definition of sexting and how it is defined. As mentioned previously, the definition of sexting is problematic in several ways. Therefore, future research could employ a commonly understood definition that can easily be used across studies. This definition also needs to distinguish whether the sending or receiving of a "sext" was unwanted or whether it was voluntary and free of pressure or coercion, which is similar to Wolak and Finkelhor's (2011) distinction. Additionally, the definition should factor in whether or not the adolescent perceives sexting as sexual. If not, it may be possible that sexting may not be the right term to describe the activity that the adolescent has engaged in, given that sexual intent is missing.

Another future direction that deserves more attention is to distinguish different situations of sexting (Barrense-Dias et al., 2017; Harris et al., 2013). The studies of this thesis distinguished who the sexting partner was. However, as the circumstances of each sexting partner were not examined in detail,

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further studies are encouraged that can, for instance, consider the relationship status of romantic partner, longtime partner, or casual partner and whether this may relate to different antecedents and outcomes of sexting (Drouin et al., 2013; Lee et al., 2015). Sexting to strangers also requires further contextual consideration in which it would be of interest to examine how long the adolescent has had contact with the stranger before sexting with them, where the communication took place and on what platforms, and who initiated the contact. It would also be of interest to examine how the adolescent experienced the situation, i.e., whether it was perceived as positive, benign, or distressing.

Furthermore, different contexts in which sexting took place could also be considered, for instance, which platforms were used for sexting, given that different digital technologies allow for different activities. It would also be of interest to consider in which physical environment the sexting took place, for example, whether sexting took place privately at home, during school, or with a friend present. Each of these environments may be related to different motivations to engage in sexting and may affect the sexting experience. For example, if sexting is done in a private setting at home, it may reflect a more intimate sexual activity with someone close to the adolescent.

Further research could also investigate specific subgroups that may or may not engage in sexting. In particular, groups that, in other cases, have been identified as being more vulnerable online should be given priority, groups such as adolescents with neuropsychiatric disorders. Indeed, adolescents with autism spectrum disorder are more susceptible to cyberbullying (Holfeld et al., 2019) and can be at greater risk of sexual victimization (Brown-Lavoie et al., 2014; Holmes et al., 2019). Another important group seldom researched in relation to sexting is LGBTQ adolescents. Previous research on this group has, in several instances, found LGBTQ adolescents to be more disadvantaged in school and often more vulnerable to bullying and sexual abuse (Brown & Herman, 2015; Elipe et al., 2017). Previous work has also found that LGBTQ adolescents have more negative experiences of sexting, and may perceive it as more troublesome for themselves (Gewirtz-Meydan et al., 2018; Needham, 2020; Van Ouytsel et al., 2019b). Importantly, research on both these groups should not be conducted only from within a risk frame. Indeed, the Internet may instead present an opportunity for sexual exploration and expression for adolescents with neuropsychiatric disorders and LGBTQ adolescents, an opportunity that may not be available in their offline world.

None of the studies in the thesis included the role of socioeconomic and demographic conditions in the main analyses. Understanding how and whether sexting differs between socioeconomic and demographic groups may be an important future direction, given that it is well established that socioeconomic and demographic factors can influence adolescent sexuality overall (Morris & Rushwan, 2015; Santelli et al., 2000). However, the few studies exploring this possible relationship have achieved mixed results that either point to no

significant relationship or indicate that low socioeconomic status increases the likelihood of sexting (Livingstone & Görzig, 2012; Yépez-Tito et al., 2018; Van Ouytsel et al., 2014). Considering socioeconomic and demographic conditions may be especially relevant in countries similar to Sweden that in recent decades have become more ethnically diverse, but have also seen a widening of economic gaps between low- and high-income families (Statistics Sweden, 2018, 2020). Adolescents as a whole in Sweden should be considered heterogeneous. It is thus possible that, depending on socioeconomic and demographic conditions, different adolescent groups may develop dissimilar attitudes and means of sexual exploration, which in turn may affect their sexting behaviors.

The studies in this thesis did not investigate in detail the dynamic peer processes that may influence adolescents' sexting behaviors. In Study III, it was also not clear whether the peer norms that the adolescents referred to were mainly found among adolescents' closest friends, a close-knit group of friends, or within a larger school setting. Indeed, studies have shown that, depending on proximity to peers, the effects of sexting on adolescent behavior can differ. For instance, one study found that classmates have a stronger influence on adolescents' cyberbullying than do friends (Festl et al., 2013), while other studies have shown close friends to have a stronger influence on adolescents' substance abuse (Morgan & Grube, 1991; Payne & Cornwell, 2007). To this author's knowledge, no studies of peer influence on adolescent sexting have accounted for adolescents' proximity to peers. Here, it may be of particular interest to explore whether the norms surrounding sexting differ among close friends versus among cliques and crowds, and also to explore whether the strength of the influence differs between these groups.

It would also be of interest to further examine the supporting role peers, and especially friends, may have for adolescents who sext. During the frequent social contacts adolescents have with their peers, various ideas and beliefs are exchanged with which adolescents try to make sense of their changing bodies, thoughts, and emerging sexuality (Steinberg, 2011; Temple-Smith et al., 2016). In this exchange, adolescents likely learn how others may think about sexting and how adolescents are treated for engaging in sexting, which in turn may affect how adolescents perceive their role in sexting. Indeed, friends and peers can be essential sources of emotional and practical support. If adolescents experience negative consequences from sexting, they will likely first seek help from friends and peers (Bundock et al., 2020; Jørgensen et al., 2019). Therefore, adolescents may need knowledge of and strategies for supporting a friend who is sexting, and for helping a friend who may experience distress from sexting. This could benefit both the adolescent who has been victimized and the helping peers, as they may also feel distressed or inadequate at having a friend in need they feel they cannot help.

Lastly, further qualitative work could also examine adolescents' subjective

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perceptions and experiences of sexting. Several studies have already examined why adolescents engage in sexting, how they perceive gender inequalities in sexting, and what adolescents think sexting will lead to (e.g., Lenhart, 2009; Lippman & Campbell, 2014; Ringrose et al., 2013; Stanley et al., 2018; Van Ouytsel, Ponnet et al., 2017). Still, more research is needed that accounts for the highly individual and subjective experiences that adolescents may have of sexting. Bronfenbrenner (2005) stated that adolescents are active in their sexual development, in which they tend to seek certain situations and environments based on their individual characteristics and subjective expectations. Qualitative work may thus be a potent method to capture and structure these highly individualized, subjective, and complex exchanges between the person and the environment in relation to sexting.

Conclusions

This thesis and its empirical basis have provided knowledge of two themes that can contribute to our understanding of adolescent sexting. First, adolescent sexting may depend on the situation in which it occurs, which this thesis has considered in terms of whom adolescents sext with. Second, adolescents' experiences of sexting can both be positive and negative. However, girls generally have more negative experiences, which can be attributed to gendered sexual norms in society that restrict girls' (but also boys') sexual agency when sexting.

To conclude, adolescents are in a developmental period of change in which their understanding of their sexuality becomes important. Sexting seems to be part of the sexual exploration and sexual expression that are important for adolescent sexual development. Adolescents will thus explore different aspects of their sexuality and feel a need for sexual expression. As much of adolescents' lives today revolves around digital technologies, it is no wonder that adolescents also use these platforms for their sexual exploration and expression. Thus, sexting may not be such a peculiar and deviant behavior as it was first thought to be roughly ten years ago when it became known to the public. Instead, this thesis shows that the sexting that does occur within adolescent sexual exploration may help adolescents understand their sexuality.

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APPENDIX

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