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The influence on daily occupations of Danish adolescents experiencing stress

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ABSTRACT

Background: Stress, particularly prevalent during adolescence, is linked to negative outcomes like anxiety and depression. Without support, it can impact education, employability, and social relations as it is closely associated with resilience and adaptive capacity. However, it is unknown how adolescents who experience stress perceive and engage in daily occupations.

Aims/Objectives: To explore occupations among adolescents aged 16–20 years, reporting feelings of stress. Specifically, to investigate if adolescents reporting feeling stressed experience challenges related to daily occupations including self-care, household chores, work/school, and leisure. Additionally, to determine, if they consider these occupations significant, and if there are differences between younger and older adolescents?

Material and methods: : This study was designed as a cross-sectional online survey including Danish adolescents aged 16 to 20 years, who had experienced stress within the past month.

Results: A total of 322 respondents participated in the study, reporting a range of occupations as both significant and challenging. Among these, schoolwork emerged as particularly prominent. Notable age-related differences were observed in the perceived significance of occupations.

Conclusions/Significance: Stressed adolescents face challenges in daily occupations across all four categories, highlighting the importance of managing time and resources to support occupational balance. Age-related differences suggest the need for context-specific support.

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Introduction

Stress is a significant issue worldwide among children, adolescents, and adults [1]. It may be defined as a condition or feeling that results when the demands of daily life exceed an individual's personal, psychological, or social resources [2]. In adolescents, stress plays a distinct role, as this life stage is marked by significant physical, psychological, and social transformation [2]. Adolescents often struggle to balance these demands, which may make daily life feel overwhelming or difficult at times.

Research has consistently linked stress to adverse outcomes such as anxiety, depression, and panic [1–3]. Estimations provided by The National Board of Health in Denmark underscore that stress among all adolescents is continuing to rise. Data from 2021 indicate that approximately half of young women and one-third of young men aged 16 to 24 have reported experiencing stress-related symptoms. Notably, this trend reflects an increase of 20% among women and almost 15% for men over a decade [4].

Coping with stress independently seems difficult for adolescents since approximately 26-28% of them have consulted their general practitioner and/or taken sick leave from education or work due to stress [5]. Support is needed, not only to address psychological concerns but also to mitigate difficulties in their daily occupations. Research suggests that without the necessary support, adolescents may encounter challenges in handling the demands of education, hindering future employability, and maintaining healthy social relations [6].

Adolescence, a critical period of development [7], is marked by an increase in autonomy and responsibility,

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shaping young people's emerging occupational identity [8]. Studies show that adolescents' occupational choices are complex, and influenced by factors such as personal values, available time, skills, and context. Time-use studies reveal adolescents' typical occupational patterns and how they prioritise occupations related to like school, social interaction, and rest [9]. This understanding, paired with insights into the decision-making processes behind occupational choices, suggests that adolescence is a formative period in which young people navigate and construct their occupational identity within a dynamic social and environmental context.

If stress affects adolescents' involvement in daily occupations, it may influence their health and development. The occupational impact of stress is significant, as it can hinder adolescents' involvement in occupations that contribute to their health and development. Within occupational therapy theory and occupational science, a relationship between occupations and health and well-being is assumed [10, 11]. Engagement in occupation is believed to yield positive impacts on various self-reported health outcomes, including cognitive, physical, and psychosocial function, as well as overall quality of life. According to these core assumptions, to achieve engagement in occupations, providing an opportunity for continuous learning and growth over time, human beings need to participate in and perform occupations that meet the needs of themselves and others [12]. This understanding is, e.g. displayed in the Canadian Model of Occupational Participation (CanMOP-model), which serves as the theoretical underpinning for the current study. It provides a holistic framework for understanding how people interact with their environment and engage in occupations. It focuses on an individual's resources and potential limitations in occupations within their environment. The environment in that model includes cultural factors such as gender and age, institutional factors such as schools and workplaces, and social factors such as friends, family, and social networks [11].

In summary, undergoing stress and encountering difficulties in participating in occupations may have significant consequences for individuals' overall quality of life and health. This may manifest in various ways, influencing factors such as connection to the labour market, education, and the formation of social relationships. The present knowledge of the adolescents' perspective is limited within occupational therapy to reveal knowledge about the adolescents' choices and development regarding their occupations [9] Existing studies have jet to explore how adolescents who experience stress perceive and engage in daily occupations. Hence, this study aimed to explore occupations among adolescents aged 16 – 20 years, reporting feelings of stress. More specifically, the study explores if adolescents reporting recently feeling stressed experience challenges related to daily occupations including self-care, household chores, work/school, and leisure. Additionally, to determine if they consider these occupations significant and if there are differences between younger and older adolescents.

Materials and methods

Design and participants

This study was designed as a cross-sectional online survey among Danish adolescents aged 16 to 20 years old, who had recently experienced stress. This age span was chosen to reach both the younger adolescents attending high school and living at home, and the older adolescents who had moved away from home, to explore if there was a difference in occupational challenges and in perceived significance of occupations.

A screening question was needed to ensure that only adolescents recently experiencing stress participated in the study. Among the 10 questions of Cohen's Perceived Stress Scale [13], three potential screening questions were identified by the authors: #2 "In the last month, how often have you felt that you were unable to control the important things in your life?", #3 "In the last month, how often have you felt nervous and stressed, and #6 "In the last month, how often have you found that you could not cope with all the things that you had to do?". During pilot testing of the survey questionnaire, participants were asked to also identify which of these three questions would best indicate, if they recently experienced stress. They agreed that the question #6 was appropriate to screen for eligibility. This question was posed when screening for eligibility and only adolescents responding 'sometimes', 'fairly often' and 'very often' were invited to respond to the survey questions concerning their daily occupations.

Instrumentation

Development of the survey questionnaire

A study-specific survey questionnaire was developed. First, questions concerning demographics were developed to describe the sample. This included data on age, sex, region of residence in Denmark, and type of school/work.

Second, to construct questions related to the participants' daily occupations, domains of occupation employed in the Canadian Occupational Performance

Measure (COPM) [14] constituted an overall frame. Based on a list of occupations extracted from the COPM manual, three parents with children in the age group 16 to 20 years of age assisted in identifying potentially relevant occupations to be included in the questionnaire. Overall, seventeen occupations across domains were defined including three questions regarding self-care, eight questions concerning household/school/work (i.e. productivity), and six questions related to leisure. The household chores were chosen, recognising that the significance of these occupations could vary within the age group. In the leisure domain, occupations were chosen to ensure examples of time alone, craft/creative activities, and social activities with friends or family. At the end of the questionnaire, an open field was provided where participants could mention other occupations not listed among the proposed options.

To determine if the participants were experiencing occupational performance problems within the seventeen occupations, they were asked to rate their experience level of challenges on a four-point Likert scale from no challenges to major challenges. Similarly, to determine if occupations within household chores, school/work and leisure were considered significant by the participants, they were asked to rate their significance on a four-point Likert scale from not significant to very significant (Table 1).

Pilot test

The pilot test consisted of several phases. First, the questionnaire setup was initially tested by multiple individuals. Three occupational therapists reviewed the questionnaire, followed by a review by someone outside the field of occupational therapy to prevent that technical jargon was applied making the language incomprehensible to the target audience. Subsequently, the questionnaire was reviewed by a 15-year-old to assess for clarity of wording.

Second, four 16-year-old students attending boarding school in the North Jutland Region were invited for pilot testing. The aim was to ensure that wording and rating criteria made sense to the youngest individuals in the 16 to 20 years age group, under the assumption that if 16-year-olds understood it, the rest of the population would too. They were asked to use the "think aloud" method [15], expressing their thoughts and questions as they answered the questionnaire. They were instructed to thoroughly read through all statements to identify any misunderstandings, unclear rating criteria, or missing questions.

After answering the questionnaire, they were independently asked to identify which of the three questions from Cohen's Perceived Stress Scale best assessed for recently experiencing stress. The completion time of the 22-item questionnaire was recorded, and afterwards, it was verified that they had utilised all categories of the rating scales.

The pilot test led to some minor sentence restructuring and the addition of a missing question mark. Pilot testers took three to five minutes to complete the test. The pilot testers did not identify any missing questions or suggest any further to add. Their responses were subsequently deleted to ensure anonymity.

Following this, the recruitment strategies aimed at including relevant participants in the study were tested by multiple individuals to ensure their effectiveness.

Table 1. The survey questionnaire.

Question #	Topics
1 to 4	Demographic data: age, sex, region of residence in Denmark, type of school/work
5	Screening for eligibility: "In the last month, how often have you found that you could not cope with all the things that you had to do?"
6a to 22a	Occupational performance problems related to • self-care (bathing, brushing teeth, dressing); • household chores (shopping, doing laundry, cleaning, cooking) • school/work (attending school, participating in social activities during school hours, doing homework, working) • leisure (doing crafts, playing sports, going on excursions with family/friends, going to the movies with family/friends, partying with family/friends, having visitors) e.g. "Have you experienced challenges taking a shower in the past month?" Rating scale: No challenges - Minor challenges - Some challenges - Major challenges
9b to 22b	Significance of occupations within the domains of household chores, school/work and leisure e.g. "How significant is it for you to do your laundry?" Rating scale: Not significant - Slightly significant - Moderately significant – Very significant'

Survey administration

The survey was conducted on the SurveyXact® platform – a secure web application for building and managing online surveys and databases hosted by the University of Southern Denmark. The survey was conducted using a public link and collected responses anonymously. The survey invitation, including an information sheet and a survey link, was distributed through several channels including schools, and personal and professional networks *via* social media (Facebook).

In terms of the schools, e-mails were sent to a secretary or a principal explaining the purpose of the study and attaching an invitation for the students. The students' invitations included a brief introduction to the study and a link to the questionnaire. For each type of educational program (elementary schools,

boarding schools, high schools, business schools, and technical colleges), three in each of the five Danish regions were targeted for e-mail outreach. As some educational institutions offered multiple educational programs, the total number of emails sent out was 65. The selection of educational institutions for email outreach was randomised and based on geographical distribution, ensuring a broad demographic representation across all regions.

As for social media, the invitation was distributed through personal Facebook networks, encouraging others to share it within their networks. Further, a post was made in the occupational therapy Facebook group "Ergoterapeuternes Forum" [Forum for Occupational Therapists] attaching the invitation as a file. It was noted that direct sharing outside the group was not possible as it was a closed group.

The survey was released to participants for six weeks in March/April 2023. A reminder e-mail was sent out after the first recruitment week.

Sample size calculation

Sample size calculation was based on data in the report "How Are You?" from the Danish Health Authority [4], indicating that half of the young Danish population aged 16 to 24 years experience stress. Based on data from Statistics Denmark representing the first quarter of 2023, the number of adolescents aged 16 to 20 years old was 349,762 [16]. Assuming that 50% of these ($n = 174.801$) would experience stress, sample size calculation ($n = z2(p)(1-p)e2$) suggested a sample of $n = 384$ individuals needed to complete the questionnaire.

Data analyses

Descriptive analyses were carried out to present the study participants. Categorical data were summarised using frequencies and percentages; interval data using mean and standard deviation (SD) if normally distributed.

To address the first and second aims of the study, frequencies of the four categories of perceived challenges and significance of the daily occupations, respectively, were calculated and presented in stacked bar charts based on percentages.

Finally, to address the third aim, the sample was split into groups of 16 to17-year-olds and 18 to 20-year-olds. Again, frequencies of the four categories of perceived challenge and significance of the daily occupations were calculated for each group followed by z tests to determine statistically significant differences in proportions between groups. A value of $p < 0.05$ was considered statistically significant. Statistical analyses were performed using Microsoft Excel (version 2302, Microsoft Office).

Ethical considerations

Data were stored on SurveyXacts servers until the data collection concluded, after which it was moved to OneDrive and a secure SDU server created for the purpose. To ensure GDPR compliance, consultations were made with a representative from the Research & Innovation Organisation (RIO) at University of Southern Denmark confirming that no personal data were collected and that individuals could not be identified. Prior to responding to the questionnaire, participants were asked to provide online informed consent.

Results

Participant characteristics

A total of 477 participants entered the survey. Of these, 125 participants were excluded leaving 322 in the final analysis (Figure 1). Reasons for exclusion are detailed in Figure 1.

Mean age of the participants was 17.6 years and two-thirds were females (Table 2). The majority of the participants (65.5%) were attending upper secondary/high school, and more than half of the participants were from the region of Zealand (58.1%). Finally, 80% of the participants reported sometimes or quite often to experience stress.

Challenges experienced related to self-care, household chores, work/school, and leisure

Overall, respondents experienced challenges across self-care, household chores, work/school, and leisure (Figure 2). The data indicated that self-care such as bathing and dressing, were challenging for approximately 50% of the respondents. Notably, around 20% of the respondents reported having some, or major challenges. When considering household chores, the proportion of respondents facing difficulties increased as approximately 60% found doing laundry and cooking challenging. Cleaning seemed to be even more challenging as a notably 80% experienced challenges with more than 50% reporting some, or major challenges.

Variability in school/work-related challenges was observed in the data. Working was reported to be challenging for 55% of the respondents with 25% reporting to have some or major challenges. In contrast, schoolwork and homework were identified as even more problematic, with more than 90% indicating challenges

and the numbers for some or major challenges, respectively, being 60% and over 70%.

In the context of leisure activities, our findings suggest that sports activities were perceived as the most challenging, with more than 70% of the respondents indicating experiencing challenges. Social activities during leisure time appeared to exhibit a similar level of difficulty, with approximately 70% of the respondents reporting challenges. Conversely, attending the cinema was reported to be the least challenging, with less than 40% of the respondents facing challenges.

Significance of household chores, work/school, and leisure activities

The data revealed that several occupations were rated to be of significance (Figure 3). The significance of household chores differed among the respondents. Approximately 70% of respondents found cleaning and shopping to be significant. Cooking was deemed significant by 90% of the respondents, with over 70% rating it as moderately or very significant.

The significance of occupations related to school was rated higher than work. Especially going to school was rated high, with almost 90% reporting this occupation as moderately or very significant and 75% reporting the same for homework.

Regarding leisure activities, sports, and excursions were viewed as significant for the majority of respondents. Specifically, more than 70% considered sports moderately or very significant. Social activities during leisure time were particularly valued, with 90% of respondent acknowledging their significance. Conversely, creative activities were perceived as less significant compared to other types of leisure activities.

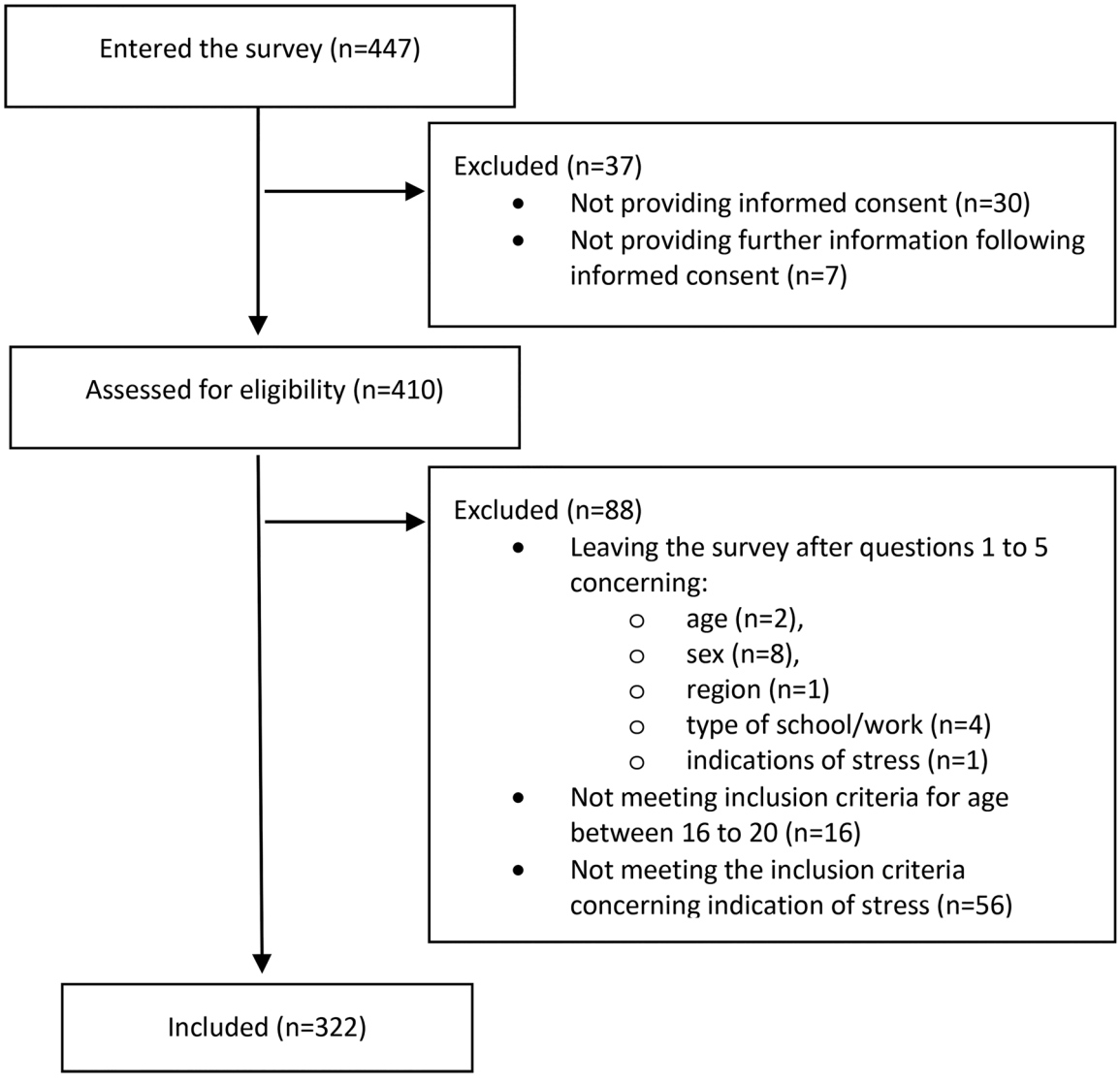

Figure 1. Flowchart of participant enrolment.

Differences in challenge and significance among age groups

The analysis revealed no statistically significant differences in self-care and leisure challenges across the age groups (Table 3). In contrast, disparities were presented in household chores and school/work occupations. Notably, challenges in shopping differed between the groups as the younger age group reported significantly fewer challenges ($p = 0.040$), whereas the older age group reported more frequent challenges ($p = 0.004$).

Furthermore, challenges in social activities at school were more common among the older age group, with 19.9% encountering major challenges compared to 7.9% in the younger age group ($p = 0.003$). In contrast, the younger age group reported finding work more challenging than the older group, with a notable difference in the frequency of some challenges (21.2% vs. 10.8%; $p = 0.017$). No other significant differences in challenges were observed for the remaining activities.

In the quest to discern the significance of occupations, no statistically significant differences were identified within the leisure domain, whereas statistically significant differences were found in relation to household chores and homework (Table 4). Hence, the older age group rated the significance of shopping, doing laundry, and cleaning higher. Only 23.9% in this age group found shopping to be not significant, representing a statistically significant difference in proportion compared to the 36.9% in the younger age group ($p = 0.012$).

Similarly, the proportion of those who found doing laundry slightly significant was lower in the older age group (19.9%, $p = 0.027$) compared to the younger group (30.8%). The trend continued in cleaning activities, where the proportion of participants, who found it slightly

Table 2. Participant characteristics.

	Participants $n = 322$
Age, m (SD)	17.6 (1.1)
Sex, n (%)	
Females	217 (67.4)
Males	103 (32.0)
Other	2 (0.6)
Region of Denmark, n (%)	
North Denmark	6 (1.9)
Central Denmark	25 (7.8)
Southern Denmark	102 (31.7)
Zealand	187 (58.1)
Capital	2 (0.6)
School/work, n (%)	
Primary and lower secondary school	4 (1.2)
Independent boarding school	3 (0.9)
Vocational school	30 (9.3)
Upper secondary /High school	211 (65.5)
Upper secondary commercial school/ Business college	65 (20.2)
Upper secondary vocational school	3 (0.9)
Work	2 (0.6)
Other	4 (1.2)
Experiencing stress*	
Sometimes	124 (38.5)
Quite often	134 (41.6)
Very often	64 (19.9)

*based on the screening question from Cohen's Perceived Stress Scale.

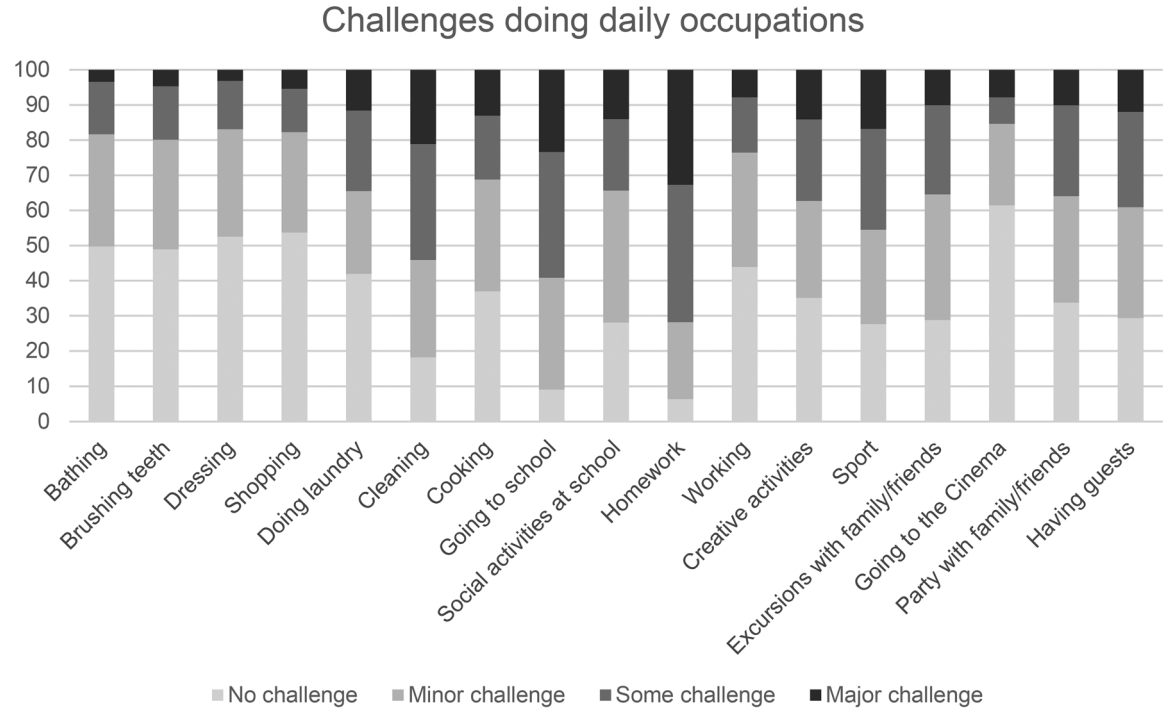

Figure 2. Challenges doing daily occupations.

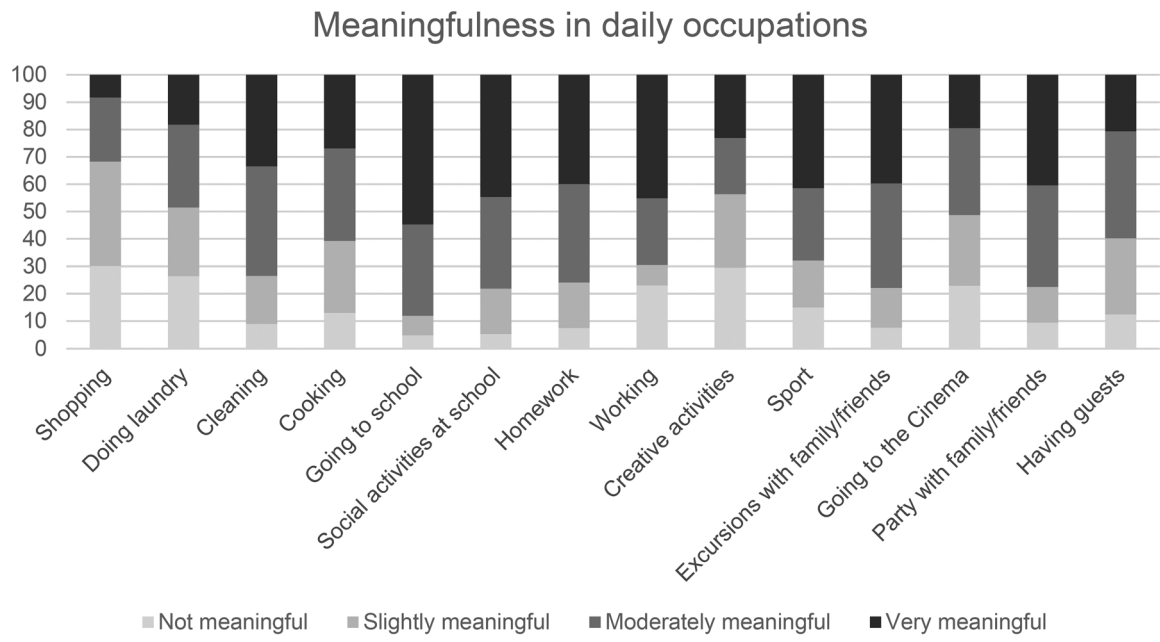

Figure 3. Meaningfulness in daily occupations .

significant was significantly lower in the older group (19%, $p=0.010$) compared to the younger group (34%).

Contrary to the findings related to household chores, the results indicated that the younger age group found homework to be more significant. In fact, 58% in this group rated homework to be moderately significant in contrast to the 44% in the older age group ($p=0.012$).

No other significant differences emerged in the analysis.

Discussion

This study aimed to explore occupations among adolescents aged 16 to 20 years old, reporting feelings of stress, addressed by challenges and significance of occupations within the domains of self-care, household chores, work/school, and leisure. The results will be discussed in the following.

Challenges experienced related to self-care, household chores, work/school, and leisure

The findings from our study suggest that adolescents experiencing stress encounter challenges across all four domains of occupation, which may imply that their daily lives are affected in various ways This aligns with a study by Nesbitt et al. (2021) [17], which reported that American post-secondary students frequently experience substantially decreased ability to perform daily occupations, particularly those related to school, work, and social interactions [17].

Our study revealed that among the respondents who reported experiencing stress, school-related occupations posed the greatest challenge, indicating a potential risk of contributing to stress. A Danish study corroborates this, reporting that over half of high school students experience stress levels comparable to the most stressed segment of the Danish population [18]. In that study, it is reported that the students often responded to stress by avoiding challenging occupations. While our study did not explore adolescents' reactions, it is reasonable to suggest that they may exhibit similar avoidance behaviours in response to challenging stressful situations. Interestingly, our study participants also identified leisure occupations, which probably are chosen based on personal interest, as challenging. This is concerning, as leisure activities provide adolescents with valuable opportunities for stress relief, positive engagement, and emotional recovery, as highlighted by Zheng et al. [19]. If adolescents perceive leisure occupations as challenging and limit their participation, their access to these stress-relief benefits may be restricted. Consequently, this limitation could contribute to occupational imbalance, characterised by a sense of being over-occupied [20].

Conversely, Parsonage et al. found that adolescents often seek challenging occupations as part of their development from childhood to adulthood. This study highlights that challenges should be viewed as a constructive element in adolescent development [8]. Taken together, our findings and previous studies indicate the importance of supporting adolescents in engaging with

Table 3. Differences in challenges between age groups.

	Age 16 to 17			Age 18 to 20			Differences	
Daily Occupations	Total n	n	%	Total n	n	%	*z*	*p*
Bathing								
No challenge	155	81	52.3	167	79	47.3	0,89	0.373
Minor challenge	155	50	32.3	167	53	31.7	0,10	0.920
Some challenge	155	18	11.6	167	30	18.0	−1,60	0.110
Major challenge	155	6	3.9	167	5	3.0	0,43	0.667
Brushing teeth								
No challenge	154	75	48.7	167	82	49.1	−0.07	0.944
Minor challenge	154	47	30.5	167	53	31.7	−0.24	0.810
Some challenge	154	28	18.2	167	21	12.6	1.40	0.162
Major challenge	154	4	2.6	167	11	6.6	−1.69	0.091
Dressing								
No challenge	153	77	50.3	167	91	54.5	−0.75	0.453
Minor challenge	153	53	34.6	167	45	26.9	1.49	0.136
Some challenge	153	18	11.8	167	26	15.6	−0.99	0.322
Major challenge	153	5	3.3	167	5	3.0	0.14	0.889
Shopping								
No challenge	149	89	59.7	166	80	48.2	2.05	**0.040**
Minor challenge	149	43	28.9	166	47	28.3	0.11	0.932
Some challenge	149	10	6.7	166	29	17.5	−2.89	**0.004**
Major challenge	149	7	4.7	166	10	6.0	−0.52	0.603
Doing laundry								
No challenge	148	64	43.2	162	66	40.7	0.45	0.653
Minor challenge	148	38	25.7	162	35	21.6	0.84	0.401
Some challenge	148	33	22.3	162	38	23.5	−0.24	0.810
Major challenge	148	13	8.8	162	23	14.2	−1.49	0.136
Cleaning								
No challenge	145	21	14.5	158	34	21.5	−1.59	0.112
Minor challenge	145	53	36.6	158	31	19.6	3.29	**0.001**
Some challenge	145	42	29.0	158	58	36.7	−1.43	0.153
Major challenge	145	29	20.0	158	35	22.2	−0.46	0.646
Cooking								
No challenge	144	56	38.9	154	54	35.1	0.68	0.497
Minor challenge	144	49	34.0	154	46	29.9	0.77	0.441
Some challenge	144	24	16.7	154	30	19.5	−0.63	0.529
Major challenge	144	15	10.4	154	24	15.6	−1.32	0.187
Going to school								
No challenge	135	14	10.4	152	12	7.9	0.73	0.465
Minor challenge	135	45	33.3	152	46	30.3	0.56	0.575
Some challenge	135	47	34.8	152	56	36.8	−0.36	0.719
Major challenge	135	29	21.5	152	38	25.0	−0.70	0.484
Social activities at school								
No challenge	134	41	30.6	151	39	25.8	0.89	0.373
Minor challenge	134	51	38.1	151	56	37.1	0.17	0.865
Some challenge	134	32	23.9	151	26	17.2	1.39	0.165
Major challenge	134	10	7.5	151	30	19.9	−3.01	**0.003**
Homework								
No challenge	133	9	6.8	151	9	6.0	0.28	0.779
Minor challenge	133	29	21.8	151	33	29.7	−0.01	0.992
Some challenge	133	56	42.1	151	55	10.8	0.98	0.327
Major challenge	133	39	29.3	151	54	8.8	−1.15	0.250
Working								
No challenge	132	48	36.4	148	75	50.7	−2.41	**0.016**
Minor challenge	132	47	35.6	148	44	29.7	1.05	0.294
Some challenge	132	28	21.2	148	16	10.8	2.39	**0.017**
Major challenge	132	9	6.8	148	13	8.8	−061	0.542
Creative activities								
No challenge	127	45	35.4	141	49	34.8	0.12	0.904
Minor challenge	127	35	27.6	141	39	27.7	−0.02	0.984
Some challenge	127	31	24.4	141	31	22.0	0.47	0.638
Major challenge	127	16	12.6	141	22	15.6	−0.70	0.484
Sport								
No challenge	127	39	30.7	141	35	24.8	1.08	0.480
Minor challenge	127	33	26.0	141	39	27.7	−0.31	0.757
Some challenge	127	34	26.8	141	43	22.0	−0.67	0.503
Major challenge	127	21	16.5	141	24	15.6	−0.11	0.912
Excursions with family/friends								
No challenge	127	38	29.9	141	39	27.7	0.41	0.682
Minor challenge	127	47	37.0	141	49	34.8	0.38	0.704
Some challenge	127	31	24.4	141	37	26.2	−0.34	0.734
Major challenge	127	11	8.7	141	16	11.3	−0.73	0.465
Going to the cinema								
No challenge	127	85	66.9	140	79	56.4	1.76	0.078

(*Continued*)

Table 3. Continued.

	Age 16 to 17			Age 18 to 20			Differences	
Daily Occupations	Total n	n	%	Total n	n	%	*z*	*p*
Minor challenge	127	23	18.1	140	39	27.9	−1.88	0.060
Some challenge	127	12	9.4	140	8	5.7	1.16	0.246
Major challenge	127	7	5.5	140	14	10.0	−1.36	0.174
Party with family/friends								
No challenge	127	46	36.2	140	44	31.4	0.83	0.407
Minor challenge	127	41	32.3	140	40	28.6	0.66	0.509
Some challenge	127	31	24.4	140	38	27.1	−0.51	0.610
Major challenge	127	9	7.1	140	18	12.9	−1.56	0.119
Having guests								
No challenge	127	39	30.7	139	39	28.1	0.47	0.638
Minor challenge	127	39	30.7	139	45	32.4	−0.29	0.772
Some challenge	127	36	28.3	139	36	25.9	0.45	0.653
Major challenge	127	13	10.3	139	19	13.7	−0.86	0390

challenging occupations that promote growth, while ensuring that these challenges remain manageable and do not contribute to stress-related avoidance.

Significance of occupations within household chores, work/school, and leisure activities

The findings of our study revealed that adolescents reported the significance of various occupations across the four domains, some of which were also identified as particularly challenging. The ability to participate in and spend time on occupations is crucial for health and well-being [21], making the awareness of their significance vital for the health of young people. Time spent, particularly on studying and physical activities has been associated with positive health for adolescents [22].

Two occupations stood out in particular as significant to the respondents: going to school and social activities. While our findings on the value of attending school align with research linking time spent in studying to positive health, they also revealed an unexpected nuance. Contrary to a study by Widmark et al. [23] suggesting that school-related occupations were often experienced as neutral, necessary, or even boring, our findings suggest that school can hold greater importance. This divergence may point to the role of individual context and perceived competence in shaping adolescents' occupational experiences. Feelings of boredom or challenges in occupations are closely tied to an individual's skills and perceived ability to complete them. However, when occupations become too monotonous, it may diminish motivation, while an overly challenging occupation can lead to anxiety and uncertainty. Both scenarios could therefore reduce participation in occupations that adolescents consider meaningful, potentially compromising adolescents' health and well-being [24]. These findings underscore the importance of balancing challenge and engagement in fostering adolescents' meaningful participation. Occupations that potentially do not overextend onés skills could be related to leisure occupations. Social activities within the leisure domain were especially significant to our participants. For adolescents, social activities are often integral to experiencing relaxation and joy [23] indicating that the feeling of stress could be mediated by focusing on the adolescents' ability to perform a variety of occupations throughout their daily lives.

Differences in challenges and meaningfulness among age groups

The disparities between the two age groups appear particularly intriguing in terms of household chores and school-related occupations. The divergence between the age groups is not unexpected, given that adolescence is a period marked by intense development and transitions due to occupations. This development is attributed to both contextual changes and enhanced skills [25].

However, the significant differences in household chores and school-related occupations have not been previously identified. Older adolescents perceive household chores as both more significant and challenging compared to younger adolescents. This difference could be linked to contextual changes, as a larger proportion of the older age group may have moved out of their parental homes. Such a transition likely imbues household chores with greater significance than they held prior to moving out. Recognising the importance of this transition is crucial, as it may represent a potential risk factor for stress among adolescents.

Methodological considerations/limitations

The thorough process of developing the questionnaire utilised in the present study is considered a strength. By employing a list of occupations representing

Table 4. Differences in meaning between age groups.

	Age 16 to 17			Age 18 to 20			Difference	
Daily Occupations	Total n	n	%	Total n	n	%	z	p
Shopping								
Not meaningful	149	55	36.9	163	39	23.9	2.50	**0.012**
Slightly meaningful	149	57	38.3	163	62	38.0	0.04	0.968
Moderately meaningful	149	29	19.5	163	44	27.0	−1.57	0.116
Very meaningful	149	8	5.4	163	18	11.0	−1.81	0.070
Doing laundry								
Not meaningful	146	35	24.0	161	46	28.6	−0.91	0.363
Slightly meaningful	146	45	30.8	161	32	19.9	2.21	**0.027**
Moderately meaningful	146	44	30.1	161	49	30.4	−0.06	0.952
Very meaningful	146	22	15.1	161	34	21.1	−1.37	0.171
Cleaning								
Not meaningful	145	11	7.5	157	16	10.2	−0.79	0.430
Slightly meaningful	145	34	23.4	157	19	12.1	2.59	**0.010**
Moderately meaningful	145	59	40.7	157	62	39.5	0.21	0.834
Very meaningful	145	41	28.3	157	60	38.2	−1.83	0.067
Cooking								
Not meaningful	141	19	13.5	152	19	12.5	0.25	0.803
Slightly meaningful	141	41	29.1	152	36	23.7	1.05	0.294
Moderately meaningful	141	45	31.9	152	54	35.5	−0.65	0.516
Very meaningful	141	36	25.5	152	43	28.3	−0.53	0.596
Going to school								
Not meaningful	135	9	6.6	152	5	3.3	1.33	0.184
Slightly meaningful	135	7	5.2	152	13	8.6	−1.12	0.263
Moderately meaningful	135	50	37.0	152	46	30.3	1.21	0.226
Very meaningful	135	69	51.1	152	88	57.9	−1.15	0.250
Social activities at school								
Not meaningful	133	9	6.8	151	6	4.0	1.05	0.294
Slightly meaningful	133	21	15.8	151	26	17.2	−0.32	0.749
Moderately meaningful	133	42	31.6	151	53	35.1	−0.63	0.529
Very meaningful	133	61	45.9	151	66	43.7	0.36	0.719
Homework								
Not meaningful	133	9	6.8	150	12	8.0	−0.39	0.697
Slightly meaningful	133	19	14.3	150	28	18.7	−0.99	0.322
Moderately meaningful	133	58	43.6	150	44	29.3	2.50	**0.012**
Very meaningful	133	47	35.3	150	66	44.0	−1.48	0.139
Working								
Not meaningful	132	24	18.2	147	40	27.2	−1.79	0.073
Slightly meaningful	132	12	9.1	147	9	6.1	0.94	0.347
Moderately meaningful	132	34	25.8	147	34	23.1	0.51	0.610
Very meaningful	132	62	47.0	147	64	43.5	0.58	0.562
Creative activities								
Not meaningful	127	38	30.0	141	41	29.1	0.15	0.881
Slightly meaningful	127	37	29.1	141	35	24.8	0.80	0.424
Moderately meaningful	127	24	18.9	141	31	22.0	−0.63	0.529
Very meaningful	127	28	22.0	141	34	24.1	−0.40	0.689
Sport								
Not meaningful	127	21	16.5	141	19	13.5	0.70	0.484
Slightly meaningful	127	24	18.9	141	22	15.6	0.71	0.478
Moderately meaningful	127	29	22.8	141	42	29.8	−1.29	0.197
Very meaningful	127	53	41.7	141	58	41.1	0.10	0.920
Excursions with family/friends								
Not meaningful	127	8	6.2	140	12	8.6	−0.70	0.484
Slightly meaningful	127	20	15.7	140	19	13.6	0.50	0.617
Moderately meaningful	127	50	39.4	140	52	37.1	0.37	0.711
Very meaningful	127	49	38.6	140	57	40.7	−0.36	0.719
Going to the cinema								
Not meaningful	127	27	21.3	140	34	24.3	−0.59	0.555
Slightly meaningful	127	31	24.4	140	38	27.1	−0.51	0.610
Moderately meaningful	127	43	33.9	140	42	30.0	0.68	0.497
Very meaningful	127	26	20.5	140	26	18.6	0.39	0.697
Party with family/friends								
Not meaningful	127	12	9.5	140	13	9.3	0.05	0.960
Slightly meaningful	127	18	14.1	140	17	12.1	0.49	0.624
Moderately meaningful	127	40	31.5	140	59	42.1	−1.80	0.072
Very meaningful	127	57	44.9	140	51	36.4	1.41	0.159
Having guests								
Not meaningful	127	20	15.7	139	13	9.4	1.58	0.114
Slightly meaningful	127	38	22.9	139	36	25.9	0.73	0.465
Moderately meaningful	127	44	34.6	139	60	43.2	−1.42	0.156
Very meaningful	127	25	19.7	139	30	21.6	−0.38	0.704

several occupational domains of relevance to daily life from the COPM manual, it was possible to develop a clear structure for the questionnaire. Furthermore, adolescents and parents were involved in the process to ensure that the occupations chosen were relevant to the target group.

All occupations chosen were evaluated in terms of perceived challenge, and all but the three occupations related to self-care were also evaluated in terms of their significance. It was assumed that adolescents would find it difficult, and possibly strange, to evaluate the significance of self-care including, brushing teeth, bathing and dressing. This, however, could have been pre-tested in the pilot phase. Given that almost 20% of the participants experienced some or major challenges related to self-care, it would have been valuable to explore, if basic self-care occupations, when becoming challenging, also become significant.

We were able to recruit a number of participants above the estimated sample size but had to exclude 14% not meeting the inclusion criteria of sometimes, quite often, or very often experiencing stress. Despite our efforts to recruit nationally, across sex, and across a variety of schools, our sample mainly represents females, students from upper secondary/high schools situated in the region of Zealand. Still, we consider our sample representative in terms of sex, given that stress is more prevalent in females. Also, the high number of participants from upper secondary school/high school may be explained by that this type of school is the predominant choice following primary and lower secondary school in Denmark. Finally, we cannot explain the huge variation in number of recruited participants across regions. The recruitment strategy, including follow-up e-mails, was the same across regions. Still, since school systems are homogeneous across regions, it could be expected that students attending e.g. high school are similar across regions.

Conclusion

In conclusion, this study demonstrates that adolescents experiencing stress report challenges in daily occupations within self-care, household chores, work/school, and leisure. Several respondents identified these occupations, particularly those related to school and leisure, as significant. The presumed link between these challenges and their perceived significance suggests the need to address stress by managing time and resources to support occupational balance.

Differences observed between the two age groups, particularly in households and school-related occupations, indicate that contextual and skill changes must be considered when supporting adolescents in achieving occupational balance as a means to reduce stress.

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