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The role of nursing in maintaining adolescent mental well-being: A mixed-methods study

Vloga zdravstvene nege pri krepitvi duševnega blagostanja mladostnikov: raziskava mešanih metod

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ABSTRACT

Introduction: Adolescents' mental well-being depends on the level of social support they receive from their family, peers, teachers, and healthcare professionals. Although nurses are often the first to recognise distress and provide support, their role in promoting adolescent mental health is often under-researched. This study examines the influence of social support on adolescent mental well-being, with particular emphasis on the role of nurses.

Methods: A mixed methods approach was used. The quantitative part of the research involved the KIDSCREEN-27 and WEMWBS questionnaires administered to a randomly selected sample of 2,972 adolescents from primary and secondary schools in Slovenia. The qualitative part of the research involved a focus group with adolescents.

Results: The findings indicate a significant positive correlation between adolescents' mental well-being and social support. Primary school adolescents identified parents as the most important individuals for their mental well-being, while secondary school adolescents placed greater importance on friends. Adolescents recognised nurses as trustworthy individuals who listen, offer advice, provide reassurance, and contribute to a sense of security and acceptance through their professional knowledge.

Discussion and conclusion: The results confirm that nursing is an important part of the social support network for adolescents. Nurses, through their educational, therapeutic, and supportive roles, significantly contribute to strengthening mental health. Involving nurses in preventive and supportive programmes for adolescents is essential to developing a holistic approach to mental health.

IZVLEČEK

Uvod: Duševno blagostanje mladostnikov je odvisno od ravni socialne podpore, ki jo prejemajo od družine, vrstnikov, učiteljev in zdravstvene nege. Vloga medicinskih sester pri krepitvi duševnega zdravja mladostnikov je pogosto premalo raziskana, čeprav so prav medicinske sestre pogosto prve, ki prepoznajo stisko in nudijo podporo. Ta raziskava preučuje vpliv socialne podpore na duševno blagostanje mladostnikov, s posebnim poudarkom na vlogi zdravstvene nege.

Metode: Uporabljen je bil način raziskav mešanih metod. Kvantitativni del raziskave je vključeval uporabo vprašalnikov KIDSCREEN-27 in WEMWBS na priložnostnem vzorcu 2.972-ih mladostnikov iz osnovnih in srednjih šol v Sloveniji. Kvalitativni del raziskave je vključeval dve fokusni skupini z mladostniki.

Rezultati: Ugotovitve kažejo na pomembno pozitivno korelacijo med duševnim blagostanjem mladostnikov in socialno podporo. Mladostniki v osnovnih šolah so kot najpomembnejše osebe za njihovo duševno blagostanje izpostavili starše, medtem ko so mladostniki v srednjih šolah večji pomen pripisali prijateljem. Medicinske sestre so mladostniki prepoznali kot zaupanja vredne osebe, ki jih poslušajo in pomirjajo, jim svetujejo in s strokovnim znanjem prispevajo k občutku varnosti ter sprejetosti.

Diskusija in zaključek: Rezultati potrjujejo, da je zdravstvena nega pomemben del člen v mreži socialne podpore mladostnikov. Medicinske sestre s svojo vzgojno, terapevtsko in podporno vlogo pomembno prispevajo h krepitvi duševnega zdravja. Vključevanje medicinskih sester v preventivne in podporne programe za mladostnike je ključno za razvoj celostnega pristopa k duševnemu zdravju.

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Introduction

Mental well-being, also referred to as psychological or emotional well-being, is defined as a dynamic process in which individual circumstances interact with psychological capabilities to meet psychological needs and generate positive emotions (MacKean, 2011). According to the US National Institute for Health (2019), mental health encompasses emotional, psychological, and social well-being. The Government Office for Science (2008, p. 10) describes mental well-being as "a state in which the individual can develop their potential, work productively and creatively, build strong and positive relationships with others, and contribute to their community."

Adolescents' mental well-being represents a growing global concern (World Health Organization [WHO], 2023). Adolescence is a critical developmental stage characterised by significant psychological, physical, and emotional changes (Loheide-Niesmann et al., 2021). Although these changes are a normal part of development, they can predispose adolescents to various mental health challenges. This critical developmental stage requires targeted efforts to strengthen mental resilience, given its lasting implications for adult life. A study by Mallya et al. (2023) found that approximately a quarter of adolescents in Karnataka, India, are affected by depression, anxiety, and stress, highlighting the significant burden of mental health issues in this age group. The rising prevalence of mental health disorders among adolescents presents substantial challenges for global education and healthcare systems. Consequently, providers are seeking effective methods to promote positive mental health (O'Reilly et al., 2019).

In a cohort study involving 1,174 adults aged 19 to 20 years conducted in Canada in 2020, those who perceived higher levels of social support reported fewer mental health problems. These results suggest that perceived social support may serve as a protective factor against mental health issues during the transition from adolescence to adulthood, even for individuals who experienced mental health problems during adolescence. Leveraging social support in prevention and treatment strategies may help mitigate mental health symptoms during this critical transition period (Scardera et al., 2020). As adolescents enter their teenage years, they become less dependent on their parents for support and increasingly seek support from their peers. Findings across different time frames and settings consistently underscore the beneficial impact of peer support for adolescents with mental health care needs (Roach, 2018). As the primary setting where young people spend most of their time outside the home, schools play a pivotal role in the provision of mental health support for adolescents (Ali et al., 2019). García-Carrión et al. (2019) suggested that schools and communities can implement strategies to promote supportive interactions among various stakeholders, including teachers, parents, community members, and other professionals. Another study conducted in 2018 among male adolescents in Australia indicates that sports could be a promising and engaging way to support mental health. Adolescents recognise the need for clubs, parents, and coaches to develop greater understanding of mental health and seek strategies for offering assistance (Swann et al., 2018).

The role of nursing in supporting adolescents' mental health has become increasingly important over the past decade, as nurses represent a key part of the system for early identification and management of mental health problems. A substantial body of international research confirms that nurses can make a significant contribution to maintaining adolescents' mental well-being by building trust, implementing preventive activities, providing health education, and collaborating with teachers and parents (Granrud et al., 2019; McAllister, 2019). In Slovenia, a significant step towards a systemic approach to strengthening adolescents' mental health was the establishment of the network of Health Education Centres (Zdravstvenovzgojni centri, ZVC). In 2002, a national network of ZVCs was formed, introducing organised prevention and health education within primary health care. Between 2013 and 2016, as part of the project "For Better Health and Reduced Health Inequalities – Together for Health," this network was upgraded and transformed into Health Promotion Centres (Centri za krepitev zdravja, CKZ), which operate in community and primary healthcare settings. CKZs also include mental health counselling units, where nurses and other professionals deliver health education and preventive activities aimed at various target groups, including adolescents. Additionally, the National Mental Health Programme 2018–2028 (Maučec Zakotnik & Drnovšek, 2021) and the MIRA Programme envisaged the establishment of 25 Centres for Adult Mental Health (CDZO) and 27 Centres for Child and Adolescent Mental Health (CDZOM). The establishment of these centres marks a significant advancement in community-based and outpatient care, as they operate on the principle of multidisciplinary collaboration, involving a range of professionals, including psychiatrists, clinical psychologists, social workers, occupational therapists, speech therapists, and nurses. The role of nurses within these centres is well recognised and includes health education, counselling, monitoring of adolescents and their families, as well as participation in planning and implementing interventions to improve mental health. Despite the existing network of supportive structures, there remains a lack of research in Slovenia systematically exploring how adolescents perceive the role of nursing in promoting mental well-being. This study is therefore crucial for developing evidence-based practices that would enable nursing to assume

a more visible and effective role in the mental health support system for adolescents.

Despite the high prevalence of mental health issues among adolescents, many fail to receive the necessary help due to stigma, lack of resources, and insufficient knowledge among healthcare providers about the specific needs of this age group. Although the role of nurses in promoting adolescent mental health is well researched internationally, there is no comparable empirical research in Slovenia. Existing professional and scientific literature only addresses adolescent mental disorders, adolescent mental health, and the role of nurses in health promotion as separate thematic areas. This indicates a clear research gap, which the present study seeks to fill.

Aims and objectives

This study examines the relationship between social support and adolescent mental well-being. It also aims to identify the role of nursing in supporting adolescent mental well-being.

Methods

The study was guided by the paradigm of pragmatism, which supports both quantitative and qualitative approaches and is commonly associated with mixed-methods research designs (Polit & Beck, 2017). The complexity of the research problem required the integration of both approaches to provide a comprehensive answer. This study employed a mixed-methods approach (Chiang-Hanisko et al., 2016). A sequential explanatory design was adopted, in which the initial quantitative research was followed by a qualitative phase to clarify the quantitative results (Newman & Ramilo, 2010).

Description of the research instrument

The questionnaire comprised four sections: social support (KIDSCREEN-27), mental well-being (WEMWBS), support from healthcare and nursing, and demographic data. Psychometric testing was conducted to establish the validity of the chosen questionnaires for the adolescent population.

a) KIDSCREEN-27

The KIDSCREEN-27 was developed between 2001 and 2004 and funded by the European Commission (Ravens-Sieberer et al., 2007). It comprises five sections: physical activity and health, general well-being and emotions, family and leisure, friends, and school and learning. Each item is rated on a five-point Likert scale ranging from 1 ("not at all") to 5 ("very much"). The questionnaire has been validated and used in various countries and settings (Andersen et al., 2015; Baydur et al., 2016; Farias Júnior et al., 2017; Vrkić, 2018). In Slovenia, the KIDSCREEN-27 has been validated among adolescents attending primary and secondary schools through a six-step analytical procedure (descriptive statistics, Mokken scale analysis, parametric item response theory, factor analysis, classical test theory, and total subscale scores) to assess the psychometric properties of the scale (Dima, 2018). The results showed good psychometric properties of the KIDSCREEN-27 questionnaire, with high internal consistency (Cronbach's $\alpha = 0.93$; Guttman's $\lambda 6 = 0.95$; McDonald's $\omega = 0.93$) and an appropriate factor structure (*CFI* = 0.847; *TLI* = 0.862; *RMSEA* = 0.072; $p < 0.001$), confirming that the questionnaire is suitable for use among Slovenian adolescents for collecting data on social support.

b) WEMWBS

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was developed in Scotland in 2006 and has been validated for adolescents in various countries (Clarke et al., 2011; Ringdal et al., 2018) and across different populations and settings (Bartram et al., 2011, 2013; Bass et al., 2016; Fung, 2019). The questionnaire comprises 14 items measuring positive mental health and well-being over the past two weeks, using a five-point Likert scale ranging from "none of the time" to "all of the time". Before employing the questionnaire, it was registered on the official website of the project. A translated version of the questionnaire (Cilar, 2017) was used, following the authors' translation guidelines. The total score is calculated as the sum of all responses (Wright & McKeown, 2018). The questionnaire was validated using Dima's (2018) six-step analysis. The Slovenian version of the WEMWBS questionnaire demonstrated good validity and reliability (Cronbach's $\alpha = 0.89$; $\lambda 6 = 0.89$; $\omega = 0.89$) and a good fit to the single-factor model (*CFI* = 0.907; *TLI* = 0.890; *RMSEA* = 0.086; $p < 0.001$), and we therefore recommend it for further use in research on the mental well-being of adolescents.

Description of the research sample and data collection

The main inclusion criterion for the quantitative part of the study was adolescents between 10 and 19 years of age (WHO, 2014). The population was selected through a systematic review, analysis, and synthesis of the literature. Random sampling was used to include all available adolescents from 22 primary schools (5% of all primary schools) and 12 secondary schools (5% of all secondary schools) in Slovenia. This method was chosen to represent adolescent characteristics within the broader adolescent population, ensuring each adolescent had an equal probability of being selected. Sampling was performed using a computer

programme. The sample size was calculated based on data from the Statistical Office of the Republic of Slovenia (2017), which indicated 176,898 enrolled primary school adolescents and 74,021 secondary school adolescents in the 2016/2017 school year. The final number of participants was determined by the total adolescent population, confidence level, and margin of error (Qualtrics, 2018), resulting in 384 adolescents. The sample size was increased to mitigate the risk of attrition and dropout. Students under 10 or over 19 years of age and those not in the education system were excluded. Survey questionnaires were distributed to 3,860 primary and 3,107 secondary school adolescents who consented to participate in the study (in their classrooms). The research involved primary (5th to 9th grade) and secondary school adolescents (1st to 4th grade).

For the qualitative part of the research, theoretical sampling was used to gain a comprehensive understanding of the studied concept. Theoretical sampling is typically used in the grounded theory method (GTM) to support theory development throughout the research process (Strauss & Corbin, 1998). Primary and secondary schools included in the quantitative part of the study were invited to participate in the qualitative part. Focus group interview samples with primary school and secondary school adolescents were chosen by school principals. The focus groups included 16 adolescents (eight from primary and eight from secondary schools) who consented to participate. Recruitment for the focus groups was based on theoretical sampling. The focus groups were conducted in educational institutions.

Description of research procedure and data analysis

The pilot phase of the study was conducted in the first half of 2019, followed by the main data collection in the second half of 2019. The qualitative phase, involving focus groups, took place at the beginning of 2020.

In the quantitative phase, the survey method was used to collect data, yielding insights into adolescents' mental well-being and their opinions on support from family, friends, teachers, and RNs. Data analysis included descriptive and inferential statistics (Polit & Beck, 2017). Only fully completed questionnaires were included in the quantitative analysis. Questionnaires with more than 50.0% missing data were excluded, while those with less than 50.0% missing values were imputed using the missForest function (Stekhoven, 2016). Psychometric testing of both scales was conducted to ensure the validity of the instruments measuring adolescents' mental well-being and social support, following the six-step protocol by Dima (2018). Test results are reported in accordance with established statistical reporting guidelines. The data were analysed using the R programming language and visualised using tables. Results interpretation was based on a statistical significance level set at $\alpha = 0.05$ (Žnidaršič, 2013). The open-ended question was analysed using Latent Dirichlet Allocation (LDA), a method used in topic modelling to cluster text documents (Pietsch & Lessmann, 2018). Sentiment analysis, defined as "the task of finding the opinions of authors about specific entities" (Feldman, 2013), was performed using the RQDA package (Huang, 2014).

Data collection involved focus groups with selected participants to gain deeper insights into adolescents' perceptions of mental well-being and social support. The GTM included semi-structured interviews with focus groups following the steps proposed by Corbin & Strauss (2008). These included line-by-line coding, open coding, axial coding, and theoretical coding to develop theoretical propositions and identify the central (core) category. The outcome was a comprehensive conceptual description (verification) (Corbin & Strauss, 2008). The qualitative data were analysed manually. The focus groups were moderated by the principal investigator, who attended all sessions. Each session was audio-recorded and concurrently documented in written notes. The recordings were then fully transcribed by the principal investigator. To ensure the credibility and reliability of the qualitative analysis, the transcripts were independently coded by two researchers, and any discrepancies were discussed until consensus was reached. This procedure enhanced the analytical rigour and trustworthiness of the qualitative findings.

Results

Quantitative research

The quantitative part of the research included 2,972 adolescents. Detailed demographic characteristics of the sample are presented in Table 1.

The results show that mental well-being varies according to the age of adolescents ($r(2965) = –0.239$, $p < 0.001$), with younger adolescents exhibiting better mental well-being than older ones. There are also gender differences ($t(2566.4) = –5.089$, $p < 0.001$), with boys ($M = 53.60$; $SD = 9.22$) achieving higher

Table 1: *Sample characteristics of the quantitative phase*

Variable	***PS (n = 1489) M (SD)***	***SS (n = 1483) M (SD)***
Age	12.2 (1.5)	16.4 (1.3)
Gender	n (%)	n (%)
Female	768 (51.6%)	911 (66.8%)
Male	721 (48.4%)	452 (33.2%)

Legend: M – mean value; n – number; SD – standard deviation; PS – primary school adolescents; SS – secondary school adolescents

levels of mental well-being than girls (M = 51.65; SD = 9.15). Moreover, mental well-being among adolescents varies by school year ($r(2965) = -0.277$, $p < 0.001$), which is consistent with the observation that mental well-being decreases with age. Adolescent mental well-being is positively correlated with social support (r = 0.624). The mean score for social support for primary school adolescents was 106.04 (SD = 18.07), while for secondary school adolescents, it was 96.34 (SD = 17.37). Adolescents' family support is positively correlated with their mental well-being ($r(2965)$ = 0.469, $p < 0.05$).

Open-ended question in the quantitative part of the research

Adolescents were asked to share their views on the role of nurses in supporting adolescents' mental well-being. In total, 1,467 adolescents (52.56%) responded to the open-ended question regarding the nurse's role in this context. A word cloud was created to analyse the data. Figure 1 highlights the most frequently used words identified in participant responses.

The responses were analysed using Latent Dirichlet Allocation (LDA) with Gibbs sampling. Following an initial review of the results, the number of topics (k) was determined based on the most common answers, specifically those with 100 or more occurrences. Topics are presented as codes and synthesised into subcategories and main categories (Table 2).

Table 2 presents the stemmed forms of words to facilitate the grouping of different variations of the same word. The most common words are divided into seven topics. Three categories and seven subcategories with associated codes were created.

Individual person-centred care

One category focuses on individual person-centred care. Adolescents describe nurses' roles as offering advice and understanding, as well as showing interest in them. Adolescents said the nurse's role is "to advise us as much as possible." They also stated: "She understands and respects their opinion and feelings," and: "You can ask her whatever you are interested in, and she will try to answer your question as much as possible. You should not be ashamed to ask what interests you." The next subcategory refers to an individual approach to caring for adolescents and patients. Adolescents pointed out that it is important for nurses to "talk to the person individually." They stated that the nurse "finds a disease, talks to a patient about mental health," and

Figure 1: *Nurses role in maintaining adolescents' mental well-being – word cloud*

Table 2: *Synthesis of data from the open-ended question on adolescents' perceptions of nurses' role in maintaining adolescents' mental well-being*

Categories	*Subcategories*	*Codes*					
Individual person-directed care	Individual approach to care for adolescents and patients	adolesc	advic	give	patient	talk	individu
	Person directed care	advis	person	direct	understand	live	interest
Educational role of a nurse	Nurses' professional knowledge	know	grow	doctor	encourag	assist	import
	The important role of a nurses	role	import	play	big	explain	physic
Therapeutic interpersonal relations	Problem-based communication	problem	Feel	people	convers	opinion	tri
	Educational and therapeutic role of a nurses	talk	nurs	life	explain	give	answer
	Nurses' relationship with adolescent in correlation with their mental well-being	mental	health	adolesc	trust	explain	inform

"takes care of patients of all ages and if she does a good job, the patient also feels well."

Educational role of nurses

These findings relate to the category of nurses' professional knowledge. Adolescents believe that a nurse "has the knowledge that can help an adolescent." One adolescent added: "Because she has more experience and knowledge, she can advise us wisely and help us in our decisions, as we young people often find ourselves in situations where we do not know how to go forward." They also stated that the nurse has an important role, as "we can rely on her professional opinion." They see the nurse as someone who assists patients, adolescents, and physicians. Another subcategory highlights the important role of nurses in supporting adolescents' mental well-being. Adolescents stated that "the nurse plays an important role as she affects the adolescent and can help them with problems." Another adolescent stated that "she has quite an important role as she can advise them" and that "the nurse has a big role to play." Adolescents also added: "She plays a big role because you cannot always talk to your parents about these things," and: "You can easily talk to your nurse about things that you cannot with your parents."

Therapeutic interpersonal relations

This category refers to the educational and therapeutic role of nurses. Nurses engage with adolescents through interpersonal relationships, providing useful information and explanations. Many adolescents emphasised that the nurse's role is to talk with them, and address their concerns: "To talk and take action as needed," "To talk to adolescents and try to help them if they have a problem," and "She is ready to talk to adolescents and explain to them why they feel as they do." Nurses also offer advice, as adolescents stated: "To make us aware of a good and healthy lifestyle," and "suggest a healthy life (sports activities…)." A good interpersonal relationship based on mutual trust is crucial as adolescents noted: "We can trust her; she answers so that she is good for us as she knows a lot about adolescent problems." The nurse has "a calming and therapeutic role." Problem-based communication between adolescents and nurses was identified as the fourth topic. It is important that adolescents can express their opinions or concerns and discuss them with a nurse, as they pointed out: "She can change our opinions, reflections and actions," and, "She can change our opinions and certain things and make it easier for us to grow up."

The final subcategory focuses on nurses' relationship with adolescents in relation to their mental well-being, which must be individual and based on trust. A nurse plays an important role in supporting adolescents' mental well-being, "as she is a person we can trust and know that she will not tell anyone, she will make things easier for us." An adolescent added: "I think that she should individually devote herself to the patient (individual), offer them at least five minutes more time, and listen to them. Of course, it is also important for the patient to believe that she is trying to foster a loving, trusting relationship. I think that there is too little talk about mental health, and many exclude people with mental illness from society, saying they are 'dangerous, weird'. Which is very wrong."

The responses to this open-ended question highlight the role of nurses in supporting adolescents' mental well-being. Adolescents believe that nurses have specialised expertise in mental health care. It is suggested that nurses should provide personalised, patient-centred care and take on an educational role. Furthermore, establishing therapeutic interpersonal relationships between nurses and adolescents is considered essential.

Qualitative part of the study

In the qualitative part of the study, interviews were conducted with five focus groups. The results of the qualitative data analysis are presented in Table 3.

Table 3: *Main category and subcategories from focus group interviews on the connection between mental well-being and social support*

Main Category	*Subcategories*	*Codes*
Adolescents' mental well-being in relation to interpersonal relations	Important people in interpersonal relationships of adolescents	Relationship with mother; family relationships; parents; family has an influence. Friends are more important; I have two friends.
	The foundation of good interpersonal relationships	Good communication; trust; openness; understanding; support; patience; awareness of difference; positive opinion; honesty; equality; respect.
	RNs play an important role	Help; care; reassure; understand, teach and advise; give hope; speak positively; she is a stranger.

Important people in adolescents' interpersonal relationships

In focus groups, both primary and secondary school adolescents were asked about important people in their lives regarding mental well-being. Primary school adolescents stated that the most important relationship is with family members, especially the mother. When asked about relationships with friends, they responded: "A little less." (PS2) When asked about teachers, they again agreed that family has the greatest effect on their mental well-being, "Most family relationships…" (PS1).

Primary school adolescents also added that friends are those they trust and talk about problems: "I usually talk to a friend first. And even if we all did poorly on the tests, we know that it will be easier for my mother to understand, but if I do poorly, she is a little angrier." (PS1). On the other hand, secondary school adolescents pointed out that family has an impact, but not as significant as friends: "But since family is only biologically connected, it's nothing, it's literally nothing, does not mean anything. I have a friend, two friends, that's how it is for me." (SS2) Regarding adolescents' mental well-being impacted by social support, SS6 stated that an adolescent must process problems with oneself first: "It's best to deal with yourself first. To be aware of yourself. No, basically by being aware of your acts. You have to process it yourself."

The foundation of good interpersonal relationships

When discussing good interpersonal relationships, secondary school adolescents stated that such relationship should be based on the following principles: good communication, trust, openness, understanding, support, patience, awareness of differences, positive opinion, honesty, equality, and respect.

When asked about their relationships with teachers, adolescents emphasised the importance of mutual respect: "They must have respect for each other" (PS1), and noted that it depends on the teacher's opinion: "It kind of depends on what they think of us." (PS4). As described, adolescents' mental well-being is closely related to their relationships with others.

Registered nurses play an important role

Both primary and secondary school adolescents were asked about the role of nurses. Adolescents stated that nurses talk with adolescents (all primary school adolescents), offer help (all primary school adolescents), provide care (PS4), comfort (PS5), understanding, information and advice (PS4), hope (PS7), and speak positively (PS5). They also emphasised that nurses have the necessary knowledge and that in certain situations it is easier to talk to a nurse than to a friend: "But sometimes it's also easier because she cannot criticise you, because she doesn't know you." (SS3).

Discussion

The findings of this study indicate that adolescents' mental well-being is significantly related to the support provided by their social environment. Adolescents who report greater perceived support tend to exhibit better mental well-being. In addition, adolescents recognised nurses as individuals who can significantly contribute to strengthening their mental well-being. They noted that nurses talk to them, understand them, reassure them, teach and advise them, and that their positive and encouraging approach gives them hope and a sense of security. Interestingly, some adolescents highlighted that in certain situations it is easier to talk to a nurse than to a friend or family member, which confirms the high level of trust and acceptance this professional group enjoys among adolescents. These results are consistent with numerous international studies confirming the importance of social support for adolescent mental health. For example, Alshammari et al. (2021) conducted a quantitative study among 1,200 high school students in Jordan, in which they found that higher levels of perceived social support significantly predicted better mental health and lower levels of depressive symptoms. The authors

emphasised that both family and peer support function as protective factors during adolescence. Similarly, a study by Acoba et al. (2024), conducted among 800 high school students in the Philippines, demonstrated that social support acts as an indirect factor between stress and mental health, with higher perceived support reducing the level of perceived stress, which in turn leads to lower anxiety and depression and more positive emotions. A broader perspective is provided by a systematic review by Cherewick et al. (2024), which analysed 43 studies on early adolescence in different countries (USA, Canada, Kenya, Norway). The authors found that social support significantly contributes to higher self-esteem, greater self-efficacy, and greater life satisfaction, indicating the universal role of supportive relationships in the mental well-being of adolescents, regardless of cultural context.

The role of health professionals, particularly nurses, within the social environment of adolescents is the subject of a growing body of research. Moen & Jacobsen (2022) conducted a qualitative study with 20 school nurses in Norway, finding that nurses work in three key areas: health promotion and prevention, facilitation of dialogue about emotions, and collaboration with other professionals (teachers, psychologists, social workers). The nurses highlighted that adolescents are often willing to disclose their problems to them, as they perceive them as neutral and trustworthy. However, the participants in the study also highlighted the lack of formal support and education in mental health, which limits their potential in the comprehensive treatment of adolescents.

A literature review on the role of school nurses (Jönsson et al., 2017) provides important findings, indicating that despite limited resources and time, their interventions positively affect the reduction of stress, depression, and anxiety symptoms in students. Similarly, Granrud et al. (2019), in the Norwegian context, state that public health nurses often work within demanding organisational frameworks dependent on principals and teachers, which can limit their ability to proactively work with adolescents who need mental health and well-being support. In addition to organisational constraints, numerous studies emphasise the importance of the emotional presence of nurses. Chukwuere (2023) investigated the concept of "presence practice" in adolescent mental health of in the Republic of South Africa. He found that simple presence and the message "I am here for you" significantly strengthen adolescents' sense of safety and trust, which in turn increases their willingness to talk and accept help. This finding is directly consistent with the results of our study, in which adolescents described nurses as individuals who give them hope, reassurance, and encouragement for positive thinking.

The need for greater involvement of nurses in the promotion of adolescent mental health is also highlighted by McAllister (2019), who emphasises that nurses are uniquely positioned to establish contact with adolescents due to their accessibility, empathy, and holistic approach. The author advocates the systemic inclusion of nurses in school and community mental health programmes, as they can significantly contribute to the early identification of mental health problems through preventive and counselling approaches.

All the aforementioned studies and our findings share the view that adolescent mental well-being results from the interwoven functioning of social relationships and professional support. In the future, it would be beneficial to enhance nurses' education in the field of adolescent mental health and well-being, provide appropriate institutional support, and develop programmes that systematically involve nurses in promoting mental well-being and the early recognition of mental distress in adolescents. Abroad, especially in Scandinavian countries, the United Kingdom, the United States, and Australia, nurses are already systematically included in the school environment as key members of multidisciplinary teams. Their role extends beyond basic health care to include counselling, recognition of signs of mental disorders, provision of support in crisis situations, health education, and participation in the development of programmes to strengthen mental health. In Slovenia, such practice has not yet been established to the same extent, as nurses are mostly present in the context of preventive examinations and health education. However, the results of our research clearly show that adolescents recognise nurses as an important source of emotional and professional support, which could form the basis for the development of a school health team model, in which the nurse would act as a liaison between the school system, the family, and health services. Such a model would enable better monitoring of adolescent mental health, facilitate earlier identification of problems, and provide comprehensive support tailored to the needs of individuals and the community.

We conducted a cross-sectional study, which limits the ability to establish causal relationships between the phenomena studied. Nevertheless, mixed-method studies are often cross-sectional by design, aiming to gain diverse perspectives on the researched phenomenon through various methodologies (Zheng, 2015). Furthermore, some schools and participants were initially unresponsive to the research invitation and required two follow-up contacts. Several participants withdrew from the study, necessitating the recruitment of new, randomly selected schools. An important limitation of the study is that the sample did not include adolescents who were excluded from the education system, as participants were recruited through schools. As a result, the study does not capture the experiences of adolescents who are not in school and who are often more vulnerable in terms of

mental health and access to healthcare support. Their exclusion may mean that the results do not reflect the full spectrum of needs of the adolescent population. The WEMWBS is a self-reported questionnaire assessing mental well-being over the past two weeks, while the KIDSCREEN-27 measures social support, which may result in socially desirable responses from participants. Another limitation of the study concerns the imputation of missing data using the missForest method, which is based on statistical prediction of missing values. Although it is one of the most reliable imputation methods, this approach can affect the accuracy of estimates and the variability of results, as it replaces missing data with a model estimate, rather than actual values. Therefore, the results should be interpreted with caution, taking into account the possibility of slight bias or reduced variability in the imputed data. It is also possible that the questionnaires did not fully capture the scope of the research problem. However, the inclusion of an open-ended question in the questionnaire likely enabled participants to express their perceptions more comprehensively. The qualitative component, using focus group interviews, provided additional depth to the understanding of the issue studied. Future research could investigate the reasons for the decline in adolescents' mental well-being with age and other associated factors.

These research limitations should be considered when interpreting the findings. Despite these limitations, the authors maintain that the findings offer reliable and valid insights, contributing to existing knowledge and understanding of adolescents' mental well-being.

Conclusion

From a nursing perspective, the results highlight the crucial role of nurses in supporting adolescent mental health. Nurses in primary care and community health settings can apply these findings into their practice by assessing social support levels, identifying signs of social isolation, and developing individualised care plans that promote connectedness and emotional safety. Preventive and educational interventions, such as family counselling, peer support groups, and workshops on mental well-being, are valuable strategies to enhance adolescents' sense of belonging and psychological resilience. In the educational context, teachers and school counsellors can use these insights to build a supportive school climate where adolescents feel accepted and understood. Implementing health promotion activities and educational programmes that strengthen empathy, communication skills, and mutual respect can improve mental well-being. From a policy and research perspective, this study provides evidence for the importance of integrating social support into national and local strategies for adolescent mental health.

Conflict of interest

The authors declare that no conflicts of interest exist.

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The study received no funding.

Ethical approval

The study was conducted in accordance with the Helsinki-Tokyo Declaration (World Medical Association, 2013) and the Code of Ethics in Nursing in Slovenia (*Kodeks etike v zdravstveni negi Slovenije, 2024*). Before the start of the research (both quantitative and qualitative), ethical approval was obtained from the National Commission for Medical Ethics (No. 0120-313/2019/13). Consent from school principals was obtained for entry into the research environment. Participants invited to the study were informed verbally and in writing about the purpose of the research, confidentiality, anonymity, the voluntary nature of participation, and the possibility of withdrawing at any stage of the research. They were informed that the results would be used exclusively for research purposes. Consent to participate in the research was given by both adolescents and parents.

Author contributions

The authors collaborated in the conceptualisation of the research. The first and second authors were involved in data collection, analysis and interpretation. The third and fourth authors contributed to the methodological design of the study, statistical analysis and synthesis, revised the draft, and finalised the paper. All authors read and approved the final version of the paper.

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